

WARNING

Automotive water-to-energy technology is not a toy! **Read this manual completely before attempting to use any part of this technology.** We will not be liable for any damages or violations of applicable law.

www.Water4Gas.com Presents:

water4gas

Modify Your Car to Save Gas

USING WATER

**Installation, Maintenance
and Replication**



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LEGAL DISCLAIMER

THIS BOOK IS PROVIDED FOR INFORMATION PURPOSES ONLY

Using some of the devices or methods described in this book on a running vehicle may be illegal in your country. Check with your local Emissions Control Department, or whatever they call themselves. My lawyer says this is nonsense, however I've been told unofficially (i.e., by rumors) that some methods are illegal to use on public roads in the USA. Since I could not reconcile who's right (maybe both?), I'm giving it to you for off-road testing, as well as for experimentation outside the jurisdiction of the USA.

IF it is illegal in your country, then don't ask a licensed mechanic because he will justly refuse installation in your vehicle since he may end up losing his license. **Doing it yourself may be borderline legal if you install it IN YOUR OWN PERSONAL VEHICLE.** THIS IS NOT A LEGAL ADVICE because I am not a lawyer and I definitely do not know the laws of your country!

INFLICT CHANGE

However, somebody must do something to make this technology approved, embraced and furthermore ENDORSED by all governments of the world; so if you know a government official, senator or parliament member who may be willing to support green technologies, present the issue to them and ask for their help.

For example, today you may fail a smog check only because the harmful emissions coming off your tail pipe are TOO LOW! Their assumption is that there must be a hole in the exhaust pipe... This attitude is a punishment to all operators of green vehicles – and must be labeled ILLEGAL by your government.

Some people will tell you that petitions don't work, that politicians are all crooked and care for nothing, and other there-is-no-hope-anywhere songs. Those are lies. The truth is that, although change is hard, it can happen and will happen. And in order for it to happen, we must all do our part. Whatever you can do – just do it!

The wrong thing to do is nothing. Whatever you can do is BETTER THAN NOTHING. Much better than nothing. Your “small” action may tip the scale and create an avalanche. Let's change the rules in our favor. We deserve it, don't you think?

ACKNOWLEDGMENTS

This book has been written by Ozzie Freedom and Bill Lang in the USA and is dedicated to the betterment of the future of all Mankind.

But we couldn't have done it alone...

Warm thanks owed to all the great gentlemen of past and present who have assisted in the development of Hydrogen and Water-Fuel technology and super-efficiency engines with YOU and your environment in mind, as well as promoting PUBLIC AWARENESS of the possibilities (very partial list):

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- **William A. Rhodes**
- **William Nicholson**
- **Yull Brown**
-
- **Water4Gas clients, affiliates, manufacturers, experimenters and readers around the world...**
- **and anyone else who helps or has helped in any way, shape or form.**

●

THANK YOU GUYS!

WELCOME TO FREE ENERGY!



Congratulations! You have chosen to own and operate a water-to-energy converter. **Water4Gas** is one of the most PRACTICAL "free-energy" devices, marked by extraordinary simplicity and effectiveness. This technology is from the 19th century - as old as 1884 or earlier! You cannot get anything, anywhere near this good, for several times the price. The inventor is anonymous and this technology is public domain.

The device shown to the right is called HHO **Water4Gas** because it separates each water particle (molecule) into a different arrangement: two "H" for Hydrogen, bonded together, plus one "O" for Oxygen. This combination, in its gaseous state, is called HHO. Also also called Rhodes' Gas or Brown's Gas after its famous researchers, William A Rhodes and Professor Yull Brown. HHO burns beautifully and provides TONS of energy. The device uses little electricity and very little water...



FACT: Pound for pound HHO IS 3 TIMES MORE POTENT THAN GASOLINE!!!



The H₂O **Water4Gas** device ("Vaporizer") shown to the left is a technology some 85 years old - we have official US patents from the 1920's describing this technology as the common knowledge of those days! The device simply adds water vapor to the normal mixture of gasoline and air, and has most of the benefits of its bigger brother, the HHO device.

Some say it has its origins in the fog of WW II, where it is said to have been used on U.S. aircrafts during that war. One story has it that as pilots flew their aircraft close to the surface of the water, they noticed a dramatic increase in the power and performance of their engines. For reasons that remain obscure, this technology has never reached the public.

What we have done is researched today's technology and SIMPLIFIED the technology using readily available parts and materials, to bring you devices

that are both very simple, very affordable and at the same time very POWERFUL. Our development also makes it easy for you to use, maintain and even duplicate our **Water4Gas** technology if you choose to.

"WHAT IS HAPPENING INSIDE MY ENGINE???"

Adding Brown's Gas to the fuel/air mixture has the immediate effect of increasing the octane rating of any fuel. "Octane Rating" means how much that fuel can be compressed before it ignites. Low grade gasoline (what's called "Regular" or 87 octane in California) ignites faster than higher octane fuels. It takes less compression to ignite. This fact causes the gasoline to ignite **before** TDC (Top Dead Center, the point where the piston is at the highest point of its motion), making it less efficient because the explosion of gas fumes pushes the piston down and out of sequence (it's too early so it goes a bit in reverse) and therefore the "pinging" noise and less power from Regular gasoline. Brown's gas or water vapor causes regular low-grade fuel to ignite more slowly, making it perform like a high octane gasoline! A higher octane rating means stronger horse power due to combustion occurring much closer to TDC, where it has a chance to turn into mechanical torque (rotary push) the right way and without pinging. Each piston transfers more energy during its combustion cycle, so combustion becomes more efficient – as well as SMOOTH. More efficient combustion translates to less fuel being consumed.

You see, this technology does not mean we're running on water, but introducing HHO simply and effectively creates the effect of using the same bad gasoline in a more economical way. It supplements and actually CORRECT the behavior of gasoline. Free energy does exist, but it has to be triggered by something. In this case, the interaction between water and gasoline is how it happens.

HOW MUCH WATER IS NEEDED

Very little. If you use water only (vaporizing the water by slow bubbling it and then sucking it into the engine), a Gallon of water would be consumed in about 8 months. If you're using electrolysis to separate it to HHO first, that Gallon will be consumed in maybe 3-4 months. Still very little. You save roughly \$900-\$1,200 a year on gasoline alone (not to mention maintenance savings) with a monthly investment of about 5-30 cents. So if you want to talk absolutes, this is not 100% free, but you'll agree with me that we're creating a LOT of effect out of very, very little. It reminds of an old story my father used to tell me about this guy who tried to turn sand into gold...well he still needed the sand, didn't he?

This is water into gold! Not in the future but today - with home made technology.

ENERGY FACTS:

1. Water "conceals" a lot of energy inside. Let's examine how much.
2. Compared to the energy of one pound of gasoline (let's call it 100%), the energy in a pound of Hydrogen is only 80% - while Brown's Gas of the same weight has a whopping **300% of the energy!**
3. When separating it into its Brown's Gas state, **each Gallon** of water expands into gigantic proportions – **1866 Gallons of combustible gas!** That's why so much effect on the engine, while such little water is being consumed per week.

WHY THE TIME HAS COME FOR THIS TECHNOLOGY

HHO gas mentioned above goes by many other names, such as Oxy-Hydrogen, hydroxy (short for hydroxygen) or di-hydroxy, Brown's Gas, green gas, waterfuel, etc. It's very different from pure Hydrogen. HHO has great advantages over pure Hydrogen – and is the only one of these two that qualifies for “Free energy” - but let's have a look at both options, shall we?

In June 2005, a world record MPG has been achieved by students of the Federal Polytechnical School of Zurich, Switzerland – using Hydrogen – for an eye-popping **12,665 MPG!** This is not a typo. They ran a test car for 13 miles on... 1.02 grams of Hydrogen.

The world now knows that Hydrogen is powerful, and everybody's talking about it. Unfortunately, Hydrogen-powered as well as hybrid cars have not matured yet. Their MPG performance is not as great as expected. And even worse, Hydrogen pressure tanks in cars and in fuel stations are a huge safety hazard – this stuff is E.X.P.L.O.S.I.V.E like hell. It gets even worse when you hear about Hydrogen factories – they pollute the environment so badly, that the ecological apparent advantage of “clean” cars is immediately exposed as a lie... Too bad.

The solution is Hydrogen-On-Demand systems. These are systems or devices such as **Water4Gas** that offer the safest and most economical solution: we produce Hydrogen when we need it, rather than producing it in an expensive and polluting factory, then delivering it in huge trucks and storing it unsafely in high-pressure gas tanks.

Hydrogen-On-Demand is much better for the environment. It is MUCH safer for the driver and passengers. I don't want my family sitting right on top of a potential super explosive bomb on the way to a picnic or birthday!

Right now, today, is a prime time for **Water4Gas** technology. Not that it's new. No. It's been here for many years. But in the past it was EASY for Big Petrol to suppress this technology. That's because inventors were isolated and vulnerable. They could be bribed, threatened or shot dead. Also, since it took these hard working fellows a lifetime of effort to achieve workable inventions, they felt they had to keep their cards close to chest. Secrecy was detrimental – they became a target!!!

Today, on the other hand, we have very fast communication lines such as email, cellphones and the Internet. Inventions from wise developers, who also like sharing their knowledge rather than secrecy, fly back and forth and all out at mind boggling speeds. Exchange-exchange-exchange is the order of the day. Some of our water-car email lines are jammed with hundreds of inventions and invention updates each and every week! With this speed and sharing spirit in mind, it will become clear to you why this technology is now unstoppable.

Change is inevitable! Water is the fuel of the future. Period. But we mean no violent revolution. We take it bit by bit so people have enough time to absorb the new facts of life and the science behind this tech, and so businesses have enough time to rearrange themselves around this changing market. Free energy does not mean that whole industries have to close down. They will have so much more to do now: new

car models, new power plants, new homes and home appliances (to heat ourselves and operate the house energy lines using water), and so forth.

A quiet revolution is already happening, where everybody will eventually win because we'll be saving the planet from destruction and energy depletion. Save the trees, the oceans and above all the atmosphere! And there's a lot of money to be made, both for small and big business.

"BMW HAS A WATER CAR!"

People come up to me and say: "Didn't you hear - BMW has their own water car!" or "Honda is releasing a water car!", and so forth. They're correct... The headlines are full of such exciting news. But what are the EXACT FACTS behind these rumors?

Doing an online research I've discovered that BMW has indeed been working on a water car for over 30(!) years – and have come up with some super-complicated technology that will take another 20 or 30 years to make common and affordable. They have about 10 super-expensive cars on the road, and ONE fueling station near Munich Airport...

Duh!!

I love Honda, but... Watching the news the other day I found out that Honda has released ONE million-dollar car to ONE lucky tester. The reporter mentioned that the infrastructure needed for this car does not exist yet.

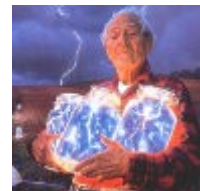
Allow me one more time: Duh!!

How affordable and practical is that??? Wake up dudes! How about a \$300 technology TODAY, right this minute?! Why do you wise guys have to complicate everything? In simplicity there is so much more power - and more business too.

You see my friend, we, **Water4Gas**, are not behind. We're at least 7-8 years ahead of the game! And if you're like me and can't afford a new car yet, then our simple but powerful add-on products put **you** 10-15 years ahead of the game!

OUR MISSION

1 Freedom company wants to see a cost effective, immediate solution to the fabricated "energy crisis." We are tired of hearing what can be done, 20 years into the future, to reduce gas prices and abate air pollution. Our mission is to help you start doing this NOW. And we do it using WATER.



We have some unbelievable products in the pipeline. Old converted cars that run on 100% water without any gasoline (or 3% gasoline), generators that produce energy out of thin air, and stuff like that – even for us it is hard to believe until we see it used successfully, not just by us, but by many others.

The idea behind **Water4Gas** devices is to provide you with something you can install TODAY in a few minutes without engine modifications, start driving, and the next thing you know - in a matter of hours or days you start thinking: "Hey, something CAN be done about it!"

You see, your belief level rises – gradiently. Step by step. Free energy is hard to believe until it's actually happening under your own hood or in your own home. Until you see it in your energy bills. So start with this first step.

So... Welcome to Free Energy!

YOU'RE PART OF A GROUP NOW!

If you know it or not, if you're an active experimenter or not, you're now part of a group that is highly interested in deriving free energy from water, especially for cars. Here's a letter from Mr. Frank Roberts, a major researcher and contributor to this technology. It will give you insight about the spirit of this group. There are many sub-groups and Mr. Roberts talks specifically to one of them:

Hello to the group

The purpose of my new design was to have a unit the average person could build with a few basic tools and start learning first hand about electrolyzers. In reading the posts I feel this has been a success. Many have now got to learn the basics first hand before going to the next level of complexity.

For those that criticize the rate of production compared to more complicated designs, they have missed the boat completely. You can't compare a basic design with no electronics to a sophisticated pulsed unit or a water splitter. This is comparing apples to oranges, I'm designing new electronics to take us to the next step and control the engine completely. It will monitor all parameters of engine functions and adjust to hydroxygen and gasoline automatically under any driving conditions.

I and others have built cars that run on hydroxy only, but that does no good if the average person can't take advantage of the technology. As a group we have to walk before we can run, rest assured we will get there. This was the point of the new design as I have stated many times, the first design was too complex for most of the group. I know there are those that are capable of building it and are not interested in taking part in the learning process.

But unless those with the knowledge and experience take the time and effort to help others in the group we have achieved nothing. I don't think it's appropriate to impress upon others how much knowledge some of us have, this just serves to discourage others from learning. At some point in our lives we have to stop being students and give of ourselves to be teachers. :-)

Best Wishes,

Frank Roberts

P.S. The things we are doing we have to do. If we don't we will just be polishing the brass on a sinking ship. Some in our society have the monkey in the cookie jar syndrome: a monkey sticks his hand in a cookie jar to retrieve a cookie, however while he is holding the cookie he can't get his hand out of the cookie jar. The monkey wants that cookie so bad he won't let go and starves to death. We need to remember what is truly important and not go down with the ship. And maybe learn how to turn the cookie jar upside down to get a cookie. ;-)

Here's another letter from Mr. Bill Lang, one of the major developers of **Water4Gas** technology. In fact without his years of developments and simplifications, this technology would not have been available today, or would have been too complex and expensive.

Hi All,

Running a car cleaner than any present emissions standard is not a problem. In fact you can get an IRS Tax Credit for doing just that.

The details are at:

www.water4gas.com

The real problem is that too many people are discussing it instead of DOING it. This is also the reason that the general public is not aware of the benefits of this simple and effective technology.

Then 'something so good, by so few, to the detriment of so many' (in the oil industry) as James Allen observed, will be known, all over the planet!

It is only the installed base that is holding up this great technology. Install more systems and the technology gets more widely known. It IS that simple.

TREAT THE WORST FIRST!

Older trucks and cars with carbs & V8's are the best candidates for this technology! Their owners will be the most grateful too. As these vehicles produce the most pollution this will be the cause of the greatest public good, as well.

Older trucks using these systems run cleaner and get better MPG than brand new trucks, fresh off the assembly line! You can help save these vehicles from extinction and get them off the endangered species list!

SO when you are at the gas station, filling up and you see one of these vehicles please take the time to just open your hood and show the owner your system and spell out the benefits!

Yes WE do this and YES we have vehicles that are 30 years old running better than brand new ones!

TREAT THE WORST FIRST!

You will be glad you did!

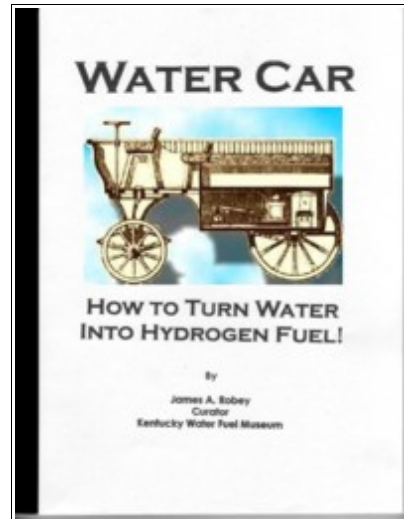
Bill Lang

RECOMMENDED READING

"Water Car: How to Turn Water Into Hydrogen Fuel!" is an exciting new book - the first book ever written on the history of running cars on water. It has been published by James A. Robey, Curator of the world's first Water Fuel Museum (waterfuelmuseum.com)

This unique museum used to be located near downtown Lexington, Kentucky. Closed down on August 30, 2006 due to lack of funding. The museum housed one of the world's few documented watercars, a 1971 Ford LTD converted to run on water by Tennessee inventor Herman P. Anderson.

I hope Robey finds the funds to re-open the museum, and if you do like me and order a copy of this book, it will surely help on this line. You will also receive with the book several video interviews with watercar inventors such as Herman Anderson and Bob Boyce, in which they explain how to build their water cars and what it took to get there.



James A. Robey is not only a curator and publicist who has his own weekly radio show at <http://www.blogtalkradio.com/WaterFuelMuseum> but he is also a great supporter and educator regarding waterfuel technology. He supports this young independent industry and deserves our support in return – order his book/DVD bundle by sending \$22.00 (USA) or \$28.00 (International), shipping and handling included, either to:



Water Fuel Museum
P.O. Box 55558
Lexington KY 40555

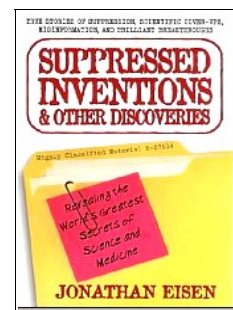
or to Paypal account:
waterfuelmuseum@yahoo.com

Thank you, I know you'll enjoy the book and the DVD.

Another interesting read is **"Suppressed Inventions"** by Jonathan Eisen. The book is not only about watercars, but interestingly the introduction begins with the suppression of the famous watercar inventor Archie Blue, and continues with the unnamed Australian inventor who ran his Ford Cortina on nothing but water.

I got my copy for only \$14 via www.Amazon.com

Jonathan Eisen opens large boxes full of secrets and tells it all with names, dates and places, including names of organizations, photographs and photocopies of intriguing classified documents, and much more.



RESPONSIBILITY & CAUSE

THINK OF THE ENDLESS POSSIBILITIES

Water IS life... and so much more...

So, why all of the excitement about common H₂O?

Water is the glue that bonds all of life together. Without it we would not exist. With it, not only do we survive, but we may have a solution to our growing global energy problem.

How so you may ask?

Water can be transformed into a perfect energy supply. It is abundant, non-polluting, and eternal in nature. You split it efficiently and combust it efficiently. After harvesting that released energy, you again have H₂O as the by-product. Hard to beat!

Will the greed of big oil and big business ever be satisfied enough that they can stop destroying this planet? I seriously doubt it.

There is energy aplenty in the wind, the sun, in flowing rivers and waterfalls...

Even in a cup of water, latent there, just waiting for the adventurous...

Go for it!

~Bob Boyce

THINK OF FUTURE GENERATION

We MUST think of others, our children, and our future generations. We MUST carefully consider whether our choices will have a negative impact upon them. If we do not, then we are no better than those that are raping us with our energy addiction. We really need to break free of the selfish mindsets that put our wants and desires ahead of others well-being.

~Bob Boyce, June 2007

THINK "FUN"

By Bill Lang

It is the greatness of the endeavor and the benefits that accompany it, that determines the outcome. The greater these benefits are, the more people, places and things they help, these are what will bring OU (Over Unity) technology into being. The benefits are so huge that public interest, demand and necessity bring them into being, over and against the forces of opposition, no matter how great these may be. Tesla electrification came into being almost overnight.

Though waterfuel technology has been suppressed and ignored, for obvious reasons, for well over a hundred years, there is every reason to believe that, if the current pace of development continues, it will surpass the developmental speed of the computer.

The power of the Internet has brought waterfuel technology out of obscurity. We want the Highest, the Sweetest and the Best technology! The sleeping giant is awake, at last! It has a brilliant history. Read and understand that history in James Allen's book! [<http://waterfuelmuseum.org>] Listen to his blogtalkradio interviews [<http://www.blogtalkradio.com/guide.aspx?search=search&value=water%20fuel%20museum>] and get an understanding of the real power of waterfuel. Exhaust the resources available on the www.

The period of suppression is OVER!

"To an extent this long period of unproductiveness can be explained. Learning was the privilege of a few and all information was jealously guarded. Communication was difficult and slow and a mutual understanding between widely separated investigators hard to reach."

~Nicholas Tesla: The Fairy Tale Of Electricity, 1915

From this quote by Tesla, we can see just how really "OVER" the period of isolation is for waterfuel. Multiple generations, addicted to oil: that's over too. The rape of the environment, the destruction of Space Ship Earth, the poisoning of ourselves, our children and our children's children, its over. That world-view is as obsolete as the people who maintain it through greed, corruption and ignorance.

The council of The League of the Iroquois considered the impact a change would have five generations into the future. Sic!

Now lets see, five generations from now, what looks better for the future? Would that be oil? Or would that be waterfuel? Now there's a real no-brainer for ya.

Pragmatism (if it works, it's good) has been and is an elemental and unstoppable force in American Culture!

We ARE the original "early adopters." RATIONAL SELF INTEREST and THE GREATEST GOOD FOR THE GREATEST NUMBER OF PEOPLE do go hand in hand.

The fact that people adopt waterfuel to "selfishly" improve their mileage does not change the fact that they also will be cutting back on, or eliminating the 5 tons of pollution their vehicles would otherwise put into the environment! Improving MPG (efficiency) improves everything else too!

"A RISING TIDE FLOATS ALL BOATS." Take note of that.

So EVERYONE is RIGHT about THAT! Improving MPG is a wholly good, or beneficial action, in the grand scheme of things. It makes little difference WHY I become an "early adopter." All it can do is help others and give me an advantage, in the long term.

I would say that increased MPG, always a goal with cars, is a TREND. If you drew a trend curve of interest in improving MPG, you might find that interest is rising. This is a strong trend today. Who'd a thunk! Now the American People have a strong interest in this strong trend and we do too. Oddly the US & German auto makers seem to have only a marginal interest in MPG improvements. Oil companies and the congress are dragging their respective feet on the MPG issue, as well. Need I mention Academic Institutions? The real issue here is just who will get the most money for producing the greatest delay in improved MPG, and increased poisons to the environment.

So the public demand trend for increased MPG goes unmet and OFF THE CHART in the not too distant future, lead by (you guessed it) increased gasoline prices! Meanwhile, back at the ranch, or the oil field, the "windfall profits" are pumped back into the congress or the "religious" schools, as the case may be, but most likely all the above. Nero fiddles whilst Rome burns!

Who pays the piper, calls the tune! We have a fugue here where the major players pay each other to keep the situation "stable." No progress or little progress and you pass GO and become eligible for the next round of anti-public interest funding.

Waterfuel R&D folks only make money if they can help others save money on fuel. They have no stake in seeing things stay the same or get worse than they are. Surely it is bad enough situation to warrant action.

So all the players who should be solving the MPG problem are stalemated by their own greed. Now what they do not know about, because the depth of this water is not clearly known or easy to measure, is what is happening on the Internet, with waterfuel technology.

Still water runs deep.

Here the pace of technology is being driven by people who can work, non stop, on a global basis, using open systems communication strategies, to advance the understanding of waterfuel technology to the point that anyone, anywhere, can get a substantial MPG advance.

The waterfuel WIN takes place by DEFAULT. It is a case of the quick young kid, on the Internet, can just move way too fast, and will get the pastry (MPG) before the slow multinational parent corporations and governments and academic institutions, fighting the LAST war, with their LAST war MEDIA technology, have a chance to flinch.

The media is the message. When Paul Revere rides down the street this time, the global village takes heed. Its the hundredth monkey that is the direct cause of a knowledge base reaching critical mass. When it does the Berlin Wall falls in a day. You cannot stop a change in the nous sphere driven by love and compassion. Stay posted!

Stay awake! Do one more thing today to help save the planet! Advance the cause! Say, with Mel Fisher, "today is the day" I am going to figure this out! I am going to do that one unlikely experiment that I have been putting off! I am going to do one more test. I see it in my dreams, I know it is going to work!

Don't get SERIOUS about it. This is a really great game. Have FUN!

ARE YOU HAVING FUN, YET?

~Bill Lang, 2007

HOW THE OPERATION ALL WORKS

Watercar technology (and general waterfuel technology) scares some big business, especially Big Petrol. Instead of going with the flow, they try to halt it or at least try to say that it's impossible, crazy, blah blah blah. For instance **Popular Science Magazine** reported that they have tested a variety of fuel enhancers and have found NO GAIN in any of them. How come? All the executives of **1 Freedom company** (the mother company of **Water4Gas**) as well have as Gulf Laboratories (the developers) and 100's of clients are running these devices daily under the hoods of our cars, with great benefits! I love Popular Science - I've been leaning from it since the early 1980's - but this time I've got something to teach THEM!

Same for the **MythBusters Show** that made fun of watercar technology - how do they know? Why don't you people come look at my car? I'll show you some myth busting!

During 2006 and most of 2007, we tried to supply the demand for the technology all by ourselves. But toward the end of 2007 the books made such HUGE demand for actual systems, that we could not carry the load anymore. Additionally, readers and visitors wanted to have a LOCAL GUY OR LOCAL COMPANY to turn to, all over the world: from India to Germany, from South Africa to Canada and so forth.

Another consideration I had is that now that the operation is growing and many radio station, TV News and movie makers want to give us great exposure, the operation becomes vulnerable to an attack if it was concentrated in one small place. IT HAD TO BE DISPERSED INTO MANY HANDS. **Your hands!**

Under these circumstances, and in order to ensure the viability of the project and the survival of this vital tech, we've adopted this firm policy:

- Everybody and his wife (my version of "the whole world and his sister..") now has access to effective waterfuel technology! No barriers!
- As much as we can help it, waterfuel technology is NOT ANYMORE protected by patents and "trade secrets" and is given to the public on an "open source" basis, which means anybody can use it, develop his own versions of it, sell it and/or teach it freely to others!
- Our philosophy is simple and non-compromising: **No secrets - No complexities - No greed.** And we wish to work with like-minded people!
- Free manufacturing information is offered via our website, so you can go in business and offer your systems to buyers! Especially you'll become a magnet for local clients - seems like they LOVE to deal with a local businesses and local experimenters, and their BELIEF LEVEL skyrockets if they see it for real in their

local town or state. Besides, it solves the problem of suspicious (and expensive) Customs!

- I've established an online place called the "FREE MARKETPLACE" (currently at www.water4gas.com/free-marketplace.htm but it may move), where buyers and sellers can meet and deal their stuff without **Water4Gas** or anybody else in the way. We don't charge and are not involved, because we want watercar technology to enjoy **free commerce** worldwide. I'm investing a little fortune out of my own pocket in the software and online services required, just to see it happening.

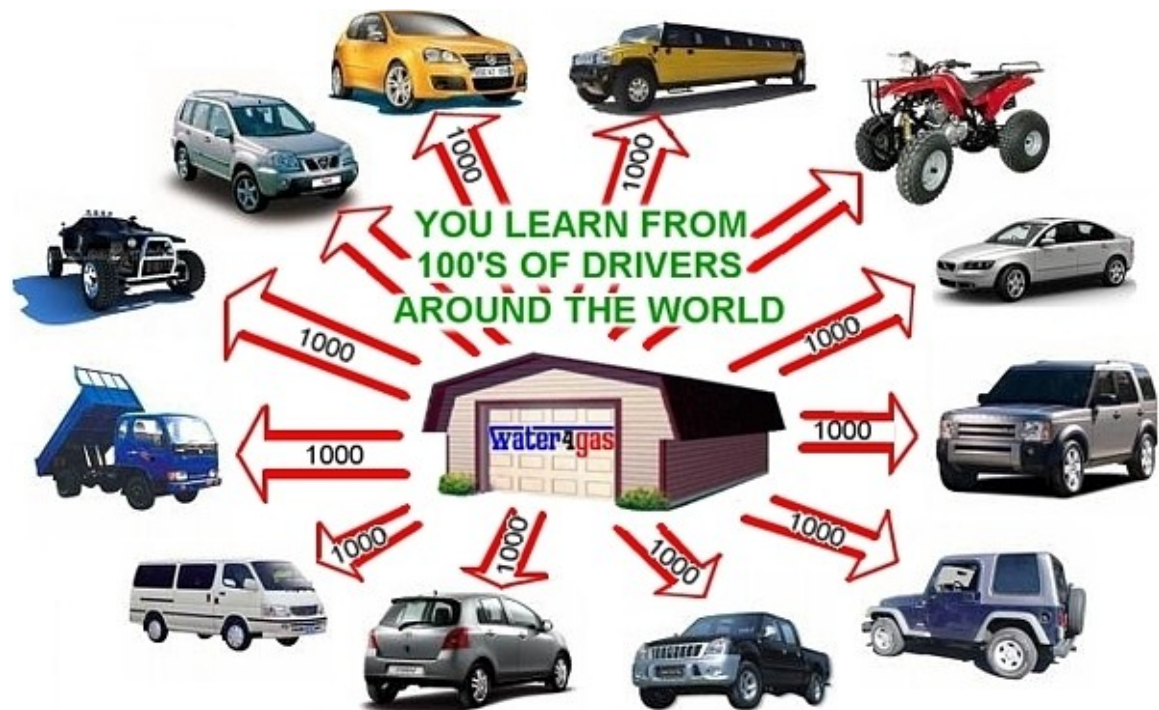
You see, under this policy, the knowledge and the commerce is spread out very quickly and there is no central point to attack and destroy. In a short while there will simply be too many of us all around the world, so enemies of this technology will have to adapt to the winds of change - or crumble.

Current waterfuel and watercar market mostly sells hard-to apply textbooks OR fuel savers/fuel additives. Good ones, no doubt. I'm not saying these are necessarily bad deals. But here's the problem: The best inventions and technologies have been lost due to **suppression and fears**. Even the great Nikola Tesla and the great Stanley Meyer died with too many of their secrets. Shame! Not on Tesla and Meyer - I admire these guys. Shame on secrecy that makes Earth lose...

To help you make a living while you help us make watercars a reality, we are offering money making opportunities connected with this operation. Check the bottom links on the website for details, however at the time of writing the main activities are:

1. Affiliating for book sales. It's easy and cost-free to become an affiliate, and we are offering ready made sales copy, graphics (banners) and powerful marketing advice to make promoting **Water4Gas** as profitable as possible.
2. Make systems and sell them - we provide free manufacturing data. The details are on the website, but basically the idea right now is that:
 - you examine the manufacturing data,
 - you make up your mind regarding what product you want to offer, you set your pricing, etc.
 - you add yourself to The Free Marketplace (once the software is installed) with your own login and password,
 - you can UPDATE your own listing as necessary.

EXCHANGE OF KNOWLEDGE



RECOMMENDED SYSTEM

Below you will find detailed descriptions and photographs of our core system. It actually comprises FIVE systems so you have to realize when you look at the big picture that not all the parts are necessarily used in one installation, or all at once. There are five combinations and they will be explained one by one throughout the book.

You can build this system, every part of it, yourself and with simple tools. This book will take you by the hand and show you step-by-step how to do it.

If on the other hand you cannot afford the time to collect items and build it yourself, you have access to the Free Marketplace – go shop for a ready made system. Access to “The Free Marketplace” was given to you via the download page. If you lost it, try www.water4gas.com/free-marketplace.htm and if you cannot find it ask for help via the email support link.

You will still need this book for maintenance, and the accompanying book (Gas Saving Techniques) to extract optimum economy out of your system.

Since there could be various versions of the system, let's call it some generic name, like “TYPICAL SYSTEM” or “Recommended System”, or as we used to call it in 2006-2007, “PAK” or Practical Application Kit. Basically we're talking about a **Do-It-Yourself version of Hydrogen-On-Demand technology**, and this book describes the system that Bill Lang (Gulf Laboratories, Florida) has developed and I have further refined into this book and the free manufacturing data.

By **creating a universal standard**, we both made it into an easy-to-follow path. So take this as **a path to follow**, as much as you can. If for instance the electrical fuse is not available in your country or state, so be it, use an equivalent component. This book should be your guideline, but not your Holy Bible. Feel free to change and adapt as necessary.

However, there are **certain MANDATORY precautions and safety measures**, such as the length of hose, the type of metal used and other factors that **MUST** be kept for your safety and the safety of the user – read this book carefully before you decide to make changes! **What seems like a “small” change to you, MAY BE CRITICAL to the safety or workability of the technology. Study first, change later!**

The chapter “Replicating The Electrolyzer” and the other replication chapters in this book show and describe the exact parts, catalog numbers and procedures to make this system.

The photo below shows the typical contents of our recommended system. However, each manufacturer around the world may develop their own version based on local needs and availability of hardware.

We sometimes call it **Practical Application Kit** (PAK) because it is an entire set of hardware to install and experiment waterfuel technology in your car – with which you can SEE and FEEL the benefits of the technology. You'll be participating in the development of future free energy.

We don't have access to all the car models that have ever been mass-produced, not to mention kit cars and special modifications. So by experimenting and feedbacking you're helping us to enlarge **our** knowledge base – and the knowledge base of water-to-energy owned collectively by Mankind. Any input you feed back to us from your experience would be collected, analyzed and released for the benefit of all **Water4Gas** readers. (FEEDBACK IS VOLUNTARY! You don't have to share your knowledge.)

In short, the kit is aimed to help you with practical application of this technology in YOUR own car - for the benefit of yourself and your environment. Again, you can make it yourself cheaply and easily – or shop for a ready made kit in "The Free Marketplace" www.water4gas.com/free-marketplace.htm



WHAT'S IN THE **TYPICAL** KIT?

The list below describes the TYPICAL kit, which means it is the list recommended by **Water4Gas** based on our experience and the numerous feedbacks we have received so far. But when you build one, or shop for one, there could be differences depending on who made them and where. The **typical** kit comprises the following:

1. Two quart-size highly durable glass jars (durable plastic option will be given later). We've never seen any of these jars break or crack, in thousands of miles of day-to-day road tests. (There were two incidents that the U.S. Postal Service broke jars even though they were marked "Fragile" and wrapped well, so give them an **extra** good wrap before shipping.)
2. Converted jar lid (made of durable white plastic) with electrodes, valves, wiring terminals, etc. This is a very unique design, with SPIRALED electrodes rather than flat ones. **Due to the magnetic forces created by the spirals,** this design produces MORE HHO - for LESS current drawn out of the car's battery. This is your **Electrolyzer**.
3. Another converted jar lid (metallic or plastic) that makes your **Vaporizer**.
4. **MAP Sensor Enhancer** – a **must have** for great fuel economy.
5. **Fuel Heater**: pre-heats your gasoline for better gas economy, a great companion to your Hydrogen-On-Demand system.
6. **PCV Enhancer**: another companion to your Hydrogen-On-Demand system that improves the PCV function, protects your engine and saves gas.
7. **Fuse holder + installation wiring** with ready-to-hook-terminals. Plus quick splice connectors for easy electrical installation. Plus flex protective tubing.
8. **Vacuum line T-connector**. Helps you hook up the Electrolyzer or Vaporizer to the Intake Manifold of the car.
9. **Two vacuum line hoses**, 3.5 feet each. (DO NOT CUT THOSE ANY SHORTER, IT'S ONE OF THE SAFETY FEATURES IN THE SYSTEM!)
10. **Installation hardware**: Bungee cords and cable straps.
11. **Catalyst** (sometimes called "Electrolyte" but actually the electrolyte is the correct term for the catalyst PLUS water) – this is the very SAFE household Baking Soda: the typical kit should have a bag of catalyst to get you started. It completes the kit to be 'Just Add Water.' The electrolyte is what helps the electricity separate water into HHO. Distilled water alone does not conduct electricity so nothing would happen without this Electrolyte.

The typical bag is 3.8 oz and is enough for 6-10 months of normal driving, and more can be obtained cheaply at almost any grocery store in the world.

Basically everything you need to successfully install, operate and tune your very own **Water4Gas** system – “Just Add Water!”



FIVE SYSTEMS IN ONE

1. **HHO/BROWN'S GAS GENERATOR** (people call it "Hydrogen Generator" but as I said HHO is more powerful), consisting of the Electrolyzer, wiring harness, hoses and installation accessories. Works with **Pure Baking Soda** (provided) in **distilled water**. Will boost performance in all cars. So far has boosted MPG by as much as 70%, but more realistically 25%-50% expected.
1. **WATER VAPOR BOOSTER**, consisting of the Vaporizer, hoses and installation accessories. Works with **tap water**. Not as powerful as system #1 but can still boost performance in any cars by 10-15%. Very simple, easy to replicate.
2. **CHARGED WATER SYSTEM**, a unique invention making use of **BOTH JARS** with **distilled water**, **Pure Baking Soda** as well as **tap water** and **hydrogen peroxide** (cheap non-hazardous liquid from your drugstore or dollar store). Instructions will be given to you, and you will find this system very interesting. You will need to add a small aquarium pump and cellphone charger. This revolutionary use of this simple everyday hardware has made several cars improve fuel economy by 50%-72%. Works **best in cars 1995 and older**.
3. **ADVANCED HHO BOOSTING SYSTEM**. This system is the *best of the best* and consists of the Electrolyzer (with the wiring harness, hoses and installation accessories), enhanced by the **PCV Enhancer**, **Fuel Heater** and above all **MAP Sensor Enhancer** (all provided, see photo above). Works with **Pure Baking Soda** (provided) in **distilled water**. Works **best in newer cars (1996 and newer)**. So far has boosted MPG by 59%.
4. **HEALTHY DRINKING WATER MAKER**, a unique use of **BOTH JARS** with **distilled water**, **Pure Baking Soda** as well as **filtered water** (no hydrogen peroxide). You will need to add a small aquarium pump and cellphone charger. Unique system, rivals drinking water chargers costing as much as \$5900.

WHAT YOU WILL BENEFIT

WHAT **WATER4GAS** WILL DO FOR YOU

According to our extensive road tests in Florida and California, your HHO **Water4Gas** device is expected to produce the following immediate results for your vehicle or boat:

- Improve your gas mileage by up to 50%. This includes both city and highway driving conditions.
- Eliminate harmful exhaust emission that pollute the environment and contribute to global warming. Your engine will ADD oxygen to the environment instead of polluting it.
- Greatly enhance engine power and performance.
- Remove carbon deposits and prevent future carbon build up.
- Reduce the operating temperature of the engine and waste heat into the environment.
- You will notice a calmer, quieter and much smoother engine operation and smoother gearshifts. This is due to the effect water has on the combustion cycle inside your engine.
- Enjoy a longer life expectancy of your engine, especially the pistons and valves.
- Pride and satisfaction: I enjoy being a leader and advisor on gas economy. You too will feel a great deal of pride and satisfaction by sharing your newly acquired knowledge with your friends, family, neighbors, community/church members and co-workers. So many drivers and truck/fleet owners struggle, when they don't have to. Once the word comes out **they will come to YOU for advice.**
- It's up to you if you want to turn your new knowledge and experience into an income source. You can! If you are a volunteer or a minister and work for the community, you can share your knowledge as part of your service. In today's crazy gasoline prices, I believe this technology is more valuable than free food.

WHAT WATER4GAS WILL DO FOR THE PLANET

- Clean up emissions.
- Reduce oil demand. No more stupid petroleum wars!!!
- Reduce engine operating temperatures, thus reducing and eventually preventing global warming.

HOW MUCH HARD-EARNED-MONEY ARE YOU THROWING AWAY?

Let's say you drive a vehicle that gets 20 miles per gallon and you cover 2,000 miles per month, then you're consuming 100 gallons of gasoline a month. At \$3 per gallon this equals to \$3,600 yearly out of your pocket! In Europe you pay almost double of that. Save 35% fuel and you will have saved \$1,260 per year in gasoline (\$1,256 after expenses). If you are two, three or four drivers in the family, this yearly savings increases dramatically.

The U.S. Department of Transportation reports the average life span of a vehicle is 12 years. This gives you that the potential saving for EACH CAR over its life span is \$15,072.

And what if you have a fleet of 50 drivers in your company? Then your savings per car will multiply to \$753,600.

What can you do with \$753,600 in free cash?

If you have several boats in your marine club, or if you are the fleet manager responsible for the economics of many trucks or transportation vans, then you know exactly what I'm talking about...

YOU CAN BUILT IT YOURSELF, BUT...

Water-for-energy technology for vehicles is almost 100 years old. You can build one of these babies yourself, using freely available information from the Internet. But let's face it - you'll have to sieve through mountains of old US Patents, read hundreds of pages and schematics, go through months or even years of trial & error to find out what works and what doesn't for modern cars. Then run some road tests and all of that.

Think of your costs and frustrations, of your garage filled with not-so-successful projects... Hey, we never claimed to own this tech exclusively – but we're here to save YOU the time and money on developing the BEST workable solution. We've invested 25 years in research & development to bring you the SIMPLEST POSSIBLE yet MOST POWERFUL solutions. Being the simplest also makes our products the most AFFORDABLE products on the market today.

And they are sooo easy to duplicate, in case you wish to copycat us to the bones!!!

LET THE IRS PAY FOR YOUR CAR UPGRADE!

We're one of very few organizations who actually help you get your costs back from the IRS, like you deserve. Why do you deserve to get your money back? Because of your beautiful eyes? No. It's because by using a "green" machine you'll be actually HELPING OUR NATIONAL ECONOMY by reducing our costs on air and sea pollution, hospitals, sick days, national debt for imported oil (not to mention the high price of economic dependability), and much more!

This may be a horrible question to ask, but let's have a real hard look at it: **HOW MANY OF OUR SOLDIERS CAN YOU SAVE FROM DEATH OR INJURY by not having to protect petroleum supplies from the Middle East?** Thousands!!! Horrible but true! And you'll be helping tremendously on this line.

Bottom line: we KNOW you deserve your money back and we'll do our very best to help you get it back in your pocket.

PASSED SMOG TEST WITHOUT A CATALYTIC INVERTER!

Listen, this is not a promise! If the engine is ruined (broken piston etc) then it must be fixed. But **Water4Gas** technology has the power to clean out the emissions dramatically. One happy user emailed this amazing true story:

A friend of mine installed one [water4gas device] on an old Cadillac. His catalytic converter had gone bad so he removed it and took it in for emissions testing. After the test the mechanic came out and said "Boy you sure have a great catalytic converter on that car!"

COMPARISON CHART

Our math is based on our extensive road tests but may vary for you depending on car model, weather, driving conditions, altitude, etc.

And with gas prices fluctuating like crazy, we can never be totally accurate. Yet the stark differences in the bottom line of the chart below will give you a clear idea of which one you want to have and how much you are risking.

Product	Water4Gas	Alternative "B"	Alternative "C"
Costs of technology	\$60-\$200	\$1,200 +installation	\$11,500 +\$250 S&H +installation
Gas Savings (estimated)	35%	28%-35%	30%-60%
Power Required (note 4)	1-3 Amps	20-30 Amps	200 AMPS!!!
Power Boost	15-20%	?	Yes
Smog (note 3)	Pass!	Pass!	Pass!
IRS Refund Support?	YES!	No	No
Noise Reduction	Excellent	Probably	???
Make money by affiliating?	YES!	No way!	No way!
Permission to copycat?	YES!	No way!	No way!
Monthly Cost (note 1)	31¢/mo	31¢/mo	???
You Save Monthly	\$104.70	\$83.70	???
You Save Yearly	\$1,256	\$1,004	???
Time to cover investment (note 2)	4.7 months*	14½ months	YEARS!!!

Notes:

(1) Consuming 4 Gallons of distilled water (\$0.99 each) +1 box of Baking Soda. BUT REMEMBER that if broken, units A & B will cost \$100's to fix - instead of pennies as in **Water4Gas!** (instructions given +full contact info of our suppliers).

(2) Calculated for a 20-MPG car driving 2000 miles/mo using \$3/Gallon gas.

(3) Nobody can guarantee that you will pass the smog test. If your engine is ruined (e.g., broken piston rings, blown gaskets, etc), then it must be fixed. HHO will definitely help if the problem is unburned gasoline due to inefficient combustion.

(4) 20-30 Amperes starts to be a problem, while 1-3 Amps is like the radio. 30 Amps will shorten the life of your alternator, 200 Amps will burn it immediately.

ELECTROLYZER INSTALLATION

SAFETY PRECAUTIONS

Incorrectly installing or incorrectly using Water4Gas technology may result in serious damage or body injury. Read and follow the instructions and safety precautions given here and in relevant places throughout this book to avoid these hazards.

If you do not understand these instructions or do not like working on vehicles, have your mechanic do the installation. It should take around 15 minutes to install.

Work outside, no smoking; make sure the engine is not hot.

Wear goggles and gloves and only use professional tools; use common sense and general safety procedures used for automotive installations and maintenance. If you're not sure, ASK!

Study this chapter well before installation. In case of trouble, refer to the chapter on troubleshooting.

The article "Shade Tree Safety" By Mike Bumbeck of autoMedia.com is a recommended reading that will give you more education on the subject:

<http://www.valvoline.com/carcare/articleviewer.asp?pg=ccr20070501st&ccid=2&scid=5>

BEWARE OF "EXPERTS"

WORD OF CAUTION: Avoid unnecessary fears and that includes don't listen to self-appointed "experts". Because the safety notes in this book are **not** intended to intimidate or stop you, only to **add** to your safety.

One fine client was told by her mechanic that due to "the fire hazard" he must refuse to install this system in her car. But if he's follow the instructions, there would be no more hazard than any other vehicle or system on the road.

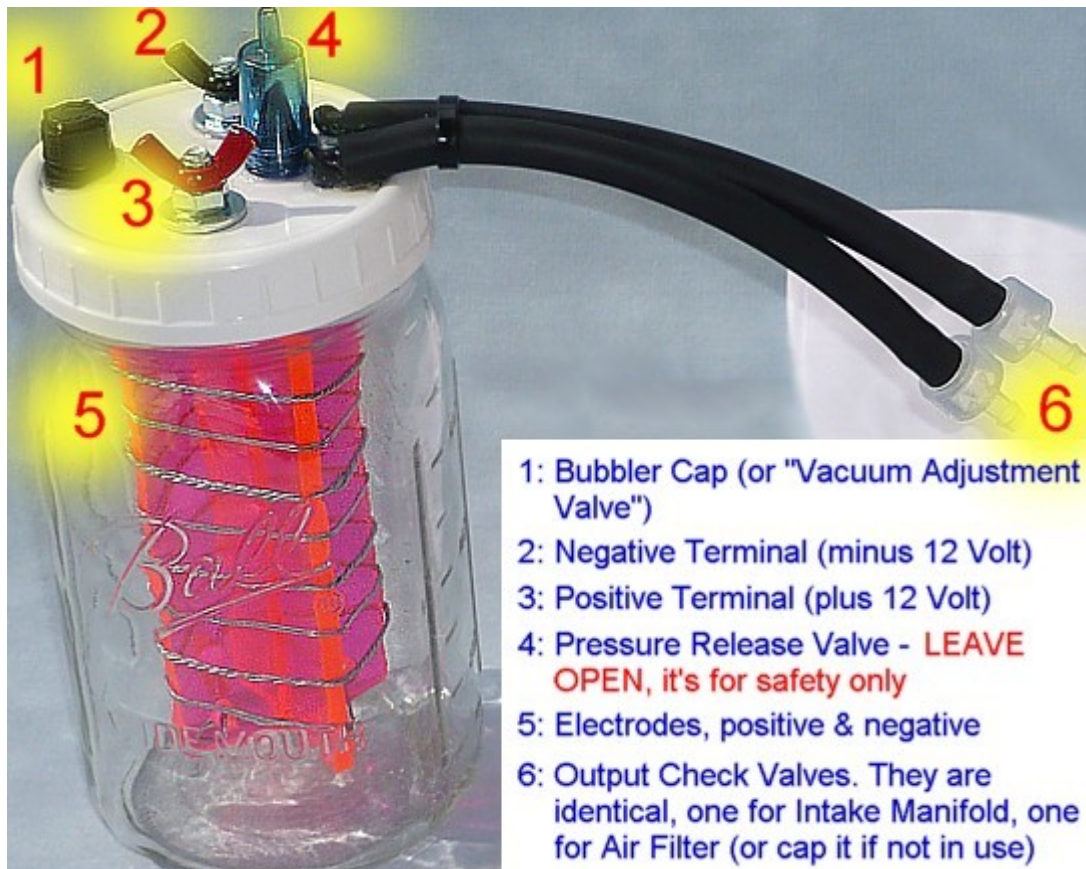
In fact **Water4Gas** is many times safer than placing Hydrogen/natural-gas tanks in cars and buses!!! That's crazy! Now that Hydrogen vehicles are new in the market they're kind of ok, but what happens 10-15 years down the road? They'll be old and blowing all over the place. One Los Angeles bus has already blown up while refueling. Fortunately the person that was supposed to be inside it cleaning had been called away. Broke the bus in half. And that was without a fire! Since these buses are so inflammable they also become a target for terrorists. I don't like it! Do you?

Yes, HHO is combustibile – AFTER IT ENTERS THE ENGINE – that's the whole point. Yet your **Water4Gas** system does NOT store hydrogen when installed properly, so there is no fire hazard due to hydrogen storage.

So again, don't let people who don't understand the system intimidate you or tell you about non-existent hazards. **Water4Gas technology cools down the engine and adds safety to any car.**

LET'S GET FAMILIAR WITH THE ELECTROLYZER

The Electrolyzer is the heart of the system, that generates HHO and cools down the engine:



INSTALLATION

Mount the HHO **Water4Gas** device in the engine compartment. It should be mounted flat and level, and secured in such a manner as to assure that it cannot bounce around when the vehicle hits bumps etc. Position the device so that it can

easily be accessed and can be conveniently removed and filled with water, or cleaned, serviced or inspected.

IMPORTANT: INSTALL THE DEVICE AWAY FROM HOT AREAS as much as possible. If you're not sure where that is, Harbor Freight Tools has a digital non-contact thermometer for under \$7 (item 93983-2VGA). Use this tool to locate the coolest available place in the engine area.

I cannot give you an exact number here for what is "too hot", because there is a combination of heating factors here: weather, engine, and the electrolysis process itself. All I can tell you that in two cases the Electrolyzer mostly melted and only the glass survived. In both cases this occurred as a result of (1) too much heat radiated by the engine through the air to the Electrolyzer, and (2) too much electrolyte. There is a situation called Thermal Runaway, where an increase in temperature changes the conditions (in this case the rise in electrical current) that causes a further increase in temperature - leading to a destructive result.

You can prevent this from happening by:

1. Use **ONLY DISTILLED WATER**. Filtered water are NOT distilled water!
2. Starting with no more than ½ teaspoon of baking soda, and add gradually only when you're sure no excess heat is being generated.
3. Install away from heat. If this is not possible block the engine heat as much as possible by placing a heat shield (bubble wrap covered by aluminum foil) between the Electrolyzer and the engine. Leave at least 1-2" air space around the Electrolyzer.

A mounting bracket can be easily fashioned from copper and/or galvanized plumber's strap. (Not supplied.) In other cases a small rubber pad (not supplied and usually not necessary) and/or two bungee cords (supplied) may be adequate.

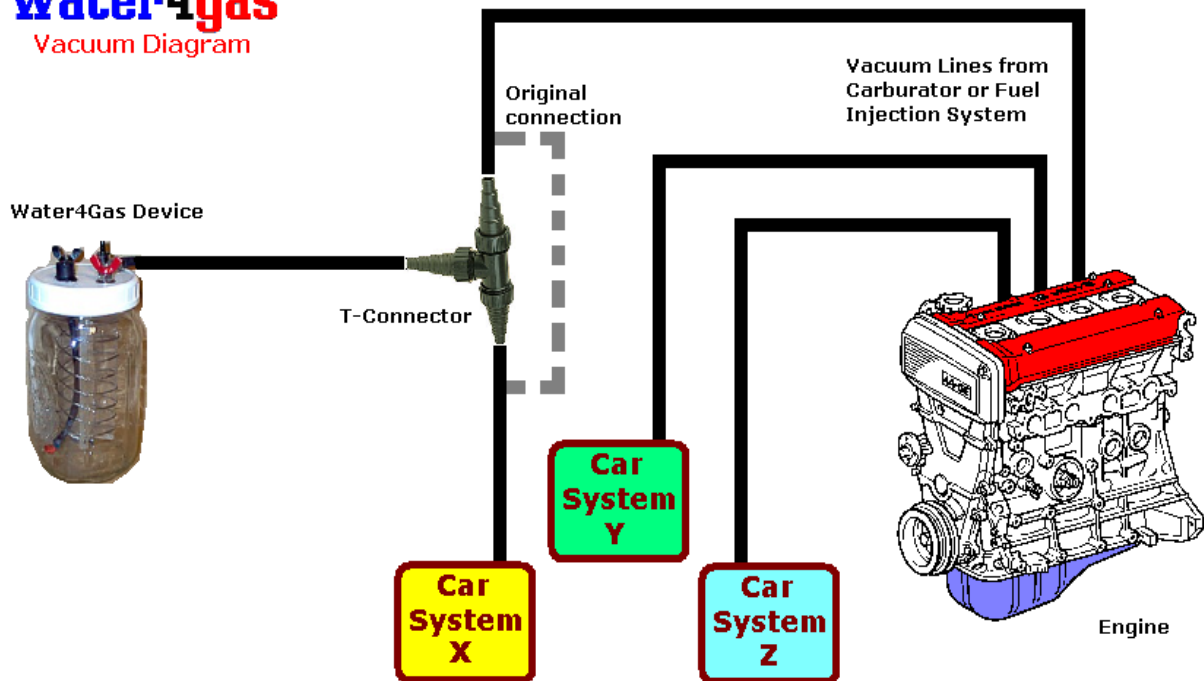
Rarely there may be vehicles that do not have enough space in the engine compartment to mount the device. A possible solution is to use the area in front of the radiator. Fasten the device to the car's frame or **anything other the radiator, belts or moving parts**, and make sure that it does not touch the radiator.

That's it for the mechanical installation and location. Now let's move for connections and supply lines. The HHO **Water4Gas** device is operated by vacuum pressure from your vehicle's engine, plus 12 Volt supply from your vehicle's electrical system.

STEP 1. VACUUM

As shown in the vacuum diagram below, vacuum lines are supplied from the engine to various car systems, and you should best use the system ("System X" in the diagram) that gets the highest vacuum. The idea is to suck the HHO into a place such as the carburetor or the intake manifold, where it can be automatically mixed with the existing fuel/air mixture.

Water4gas Vacuum Diagram



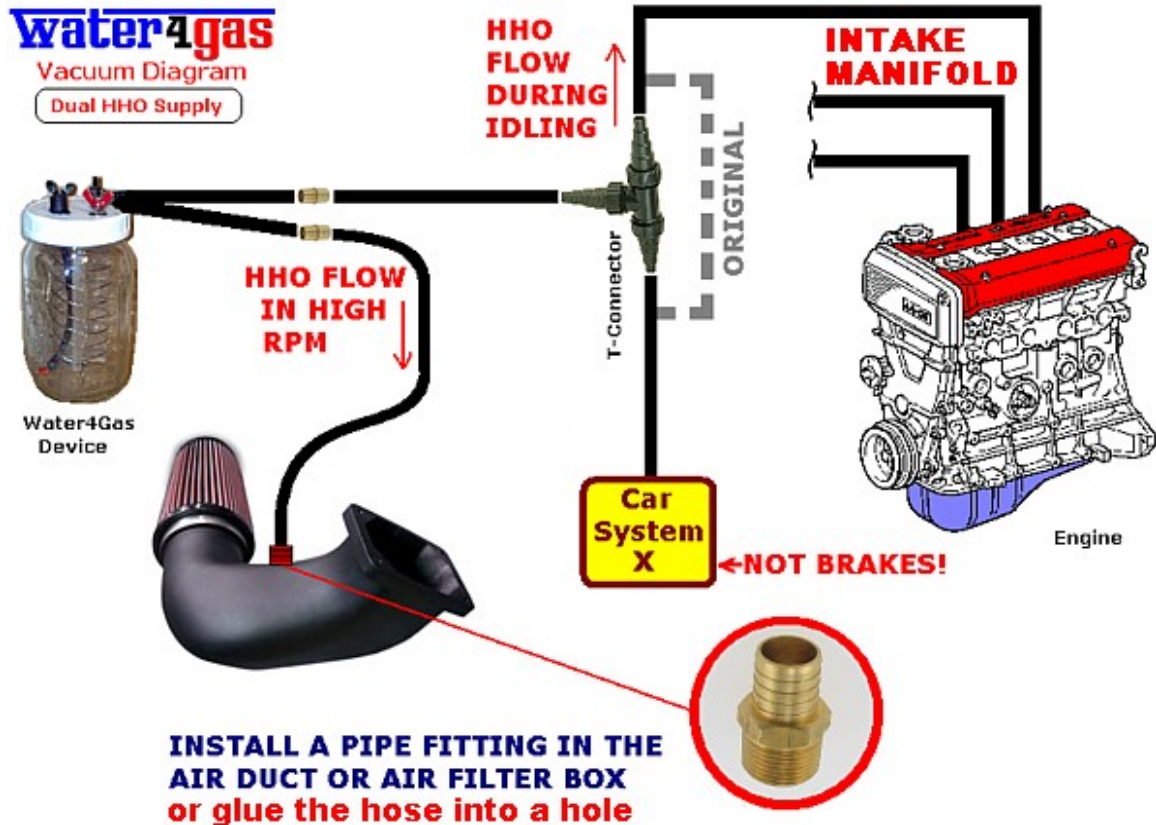
VACUUM SETUP – DUAL SUPPLY

The reason for the dual supply (dual HHO output) is that when the engine is idling, there is a high vacuum pressure in the intake manifold. This pressure drops when you accelerate or rev up the engine to higher RPM. At that moment, more vacuum is available in the air intake for sucking up the HHO gas into the engine. It may save a bit more gasoline but I don't find it critical, so it's up to you if you want to use the dual supply.

Switching between supply lines happens by itself and no control mechanism is necessary.

Refer to the Vacuum Diagram below. In this setup a SECOND line is connected from the device to the air intake of the engine. Use a universal vacuum line T-Connector (second one not provided) to make the connection. To connect the second pipe to the air intake or air filter housing, use a brass fitting (Harbor Freight sells 5 "Brass Couplers", item 34704-0VGA, for \$1.99, that's 40 cents apiece, see photo).





In later models we have built this duality right into the system, so you should have two vacuum hoses coming out of the device. That's why you only get one Vacuum-T Connector, because the other one is not necessary. Connect one output to the carb/intake manifold, and the other one to the air filter. If you're not using the other output, plug it with a bolt or rubber cap.

Optionally, drill a 3/16" hole and glue a plastic coupling (barb coupling used for irrigation) into the duct or filter housing.

Some people install one-way valves ("check valves") on both supply lines, i.e., on the two outputs of the second T-connector. But in our experience MPG was better without the valves (seemingly the valves obstruct free flow so less HHO reaches the engine). If you wish to experiment with those, check valves are available from aquarium supply stores for about \$2. See list of suppliers in chapter "Maintenance".

I found the check valves from www.Qosina.com to be more efficient because they will open fast and at low pressures. If you'd like to experiment with these low-pressure check valves, visit www.Qosina.com and search for "check valve". I would try those valves that open at 1.5 to 5 psi (catalog # 80105) and those that open at around quarter psi, such as 80068 (\$0.41) or 80125 (\$0.51). Minimum order is \$100 but **Qosina will send you free samples upon request**. Submit online request or call 631-242-3000 (New York). Especially check out pages 72-73 of their free catalog (available upon request at www.Qosina.com).

CAUTION: DO NOT USE THE BRAKES VACUUM LINE. This is usually a very thick black hose that connects between the engine and the Brake Vacuum Booster (usually a large drum on the firewall on the driver side):

**Don't mess with
this line** →

but if you do, put
METAL CLAMPS
on both sides of
the T-connector,
then make sure
there are no leaks!



Vacuum Brake Booster

Bill Lang says you can use the brakes line, just make sure to prevent all possible leaks by placing metal clamps on the hose where you spliced it.

With the engine briefly on, you should be able to detect substantial vacuum pressure coming from the line you are connecting to. If you want to know exactly, and especially if you're going to install more than one device, a good vacuum gauge is available at Harbor Freight Tools for about \$10 (www.harborfreight.com or phone 843-676-2603), see more details in the chapter "Maintenance".

Connect the vacuum line from the device, to a vacuum line that runs to the intake manifold. Make the connection as close as possible to the intake manifold. If the vehicle has a carburetor, make the connection at or below the base of the carburetor. Frequently in older vehicles, there are spare ports available for this purpose. The PCV valve* line usually makes a good connection. Vehicles with EFI (Electronic Fuel Injection) should also be connected at or near the intake manifold.



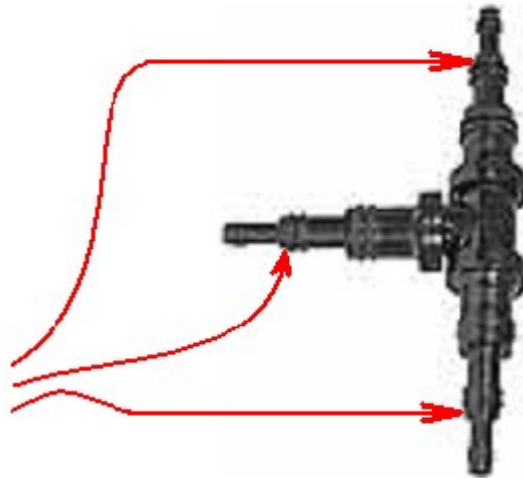
* Positive Crankcase Ventilation valve, or PCV valve, is a one-way valve that ensures continual refreshment of the air inside a gasoline internal combustion engine's crankcase.
[photo from: Wikipedia.com]

WARNING: DO NOT SHORTEN THE VACUUM LINE between the engine intake and the jar. Keep the line (hose) at least 4 ft long. This length must be kept to enhance safety and prevent damage to the device.

A universal vacuum line T-Connector is provided as well as a length of vacuum hose to make the connection. A wide range of vacuum fittings is readily available at any auto parts store (plastic fittings will do for this use).

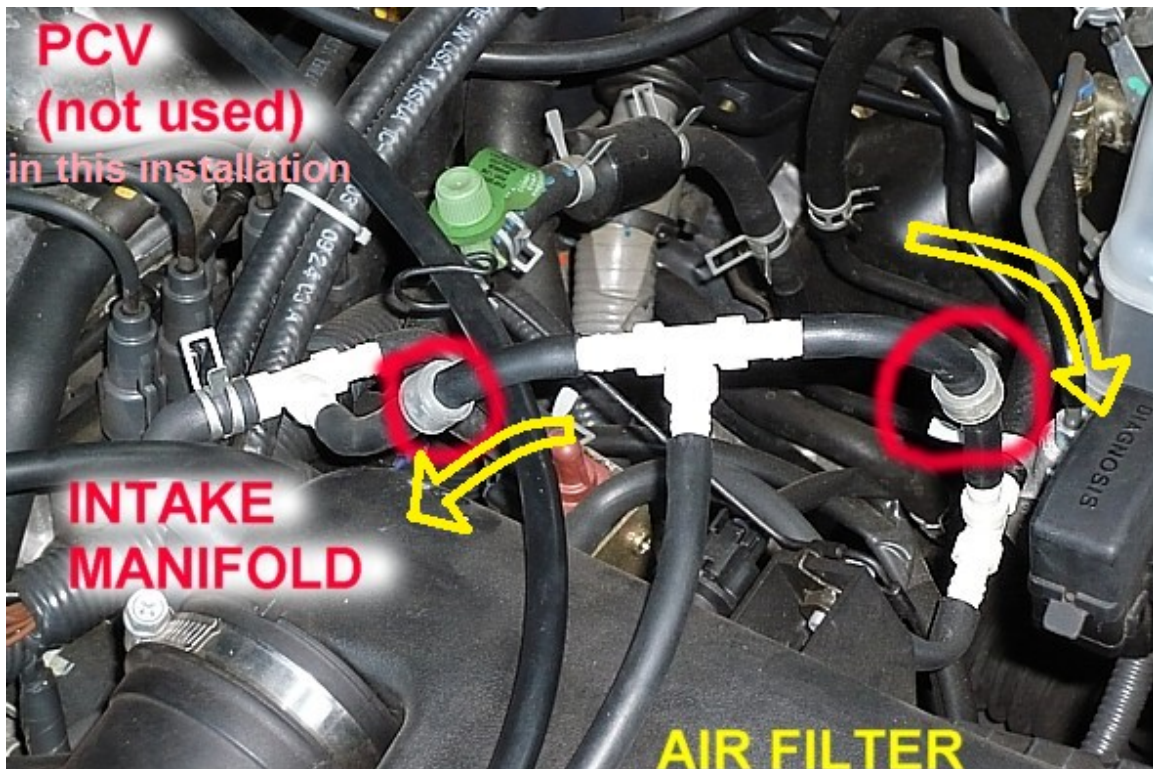
Note that the Universal Vacuum T-Connector is...well, universal. Its edges are usually too small for the hose, and should be trimmed (edge cut off) with a knife (see picture below). In my experience cutting off exactly 0.4 inch did the trick. This is recommended because the small opening obstructs gas flow for nothing. This is not mandatory, yet it will help improve performance.

Cut at shown places for a 1/4" hose. Cut larger or smaller sections, according to the hoses you're using at each end.



The photo below shows the hose connection setup I used in the Toyota Corolla. The vacuum-T at the center receives a SINGLE HHO FEED from the Electrolyzer. It then feeds (to the right) the air filter box, and (to the left) the intake manifold. The PCV hose is not used in this case and will be connected later on to the PCV Enhancer. The parts encircled in red are the two check valves that I removed from the Electrolyzer outputs and moved forward to here (doing the same function here of preventing backflows).

The reason behind this setup was that I found the air filter very close to the manifold, and eliminated the extra hose. Just an idea for you. Didn't save money because I had to buy 2 extra T's for \$4, but I think it's neat and easy to maintain.



The yellow arrows in the photo above indicate the correct direction of the check valves (in the red circles).

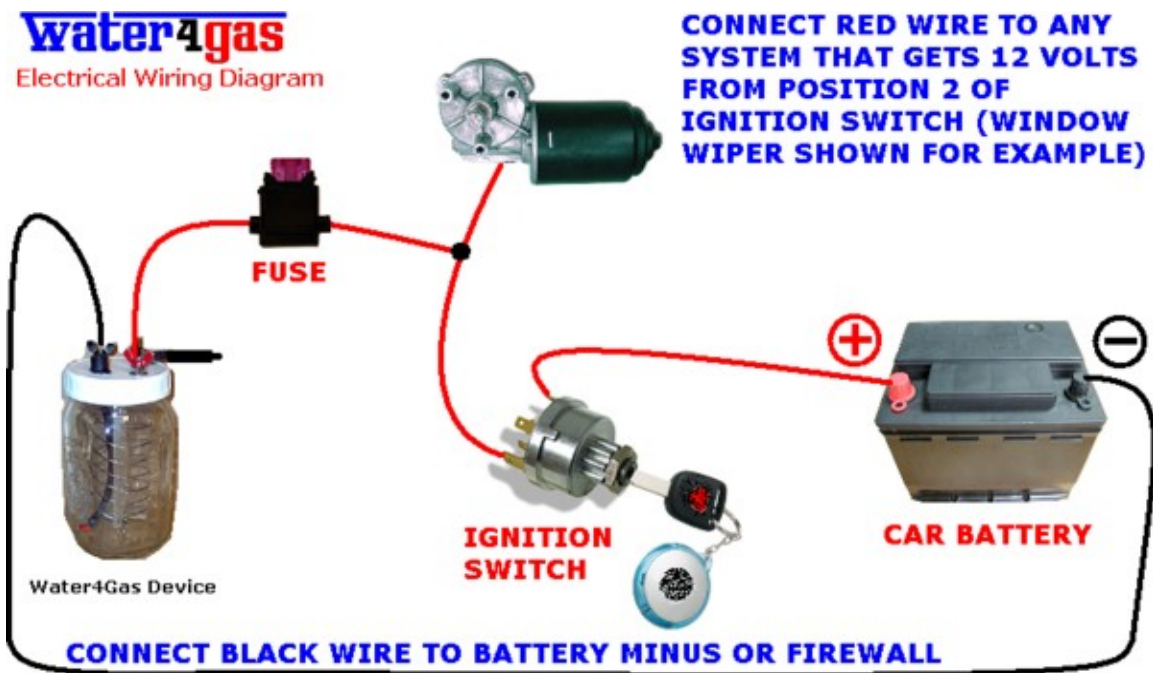
STEP 2. ELECTRICAL:

The device is designed to operate on 12 Volts. Refer to the wiring diagram below. If you're not sure consult your auto mechanic (electric), or contact us for help.

1. Connect the black terminal of the device to the **negative** terminal of the vehicle's battery, using the wire WITHOUT FUSE (black wire). If the battery is too far, connect it to the **firewall** or extend the wire all the way to the battery.
2. Identify a point in your vehicle's electrical system which has a 12 Volts (positive) present ONLY WHEN THE ENGINE IS ON (Position 2 of the Ignition Switch), such as the starter solenoid, window wiper motor, or similar circuit.
3. Turn the switch off and take out the key. Connect positive (12 Volts) to the red terminal of the device, using the FUSED wire supplied (red), to the point you've identified above.
4. To protect the wiring from long term damage, you can now put the newly installed wires into what's called "split flex tubing", see photo. You can find it in all major hardware stores such as Ace, Home depot. Don't buy it online (\$5 +S&H) because in the shop it's only 99 cents for 10 ft.

NOTES:

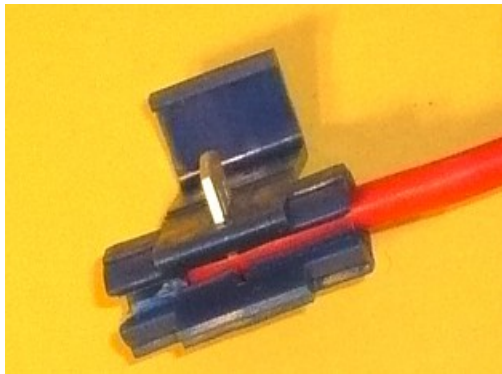
- ◆ In most newer vehicles the fuses are located in a box, in the engine compartment. I just plug the wire into the fuse holder and reinsert the fuse. Usually it is a 10 Amp or 15 Amp ignition circuit, that I use. In some older cars where there was no fuse box to connect to, the wiper motor was found most useful as a supply point. I just splice into the SWITCHED 12 Volts and it works well.
- ◆ In some cars the electrical system may be in reverse (RED wire to the body of the car, or to the battery itself). If it gets confusing, consult an auto electrician who is familiar with your specific model.



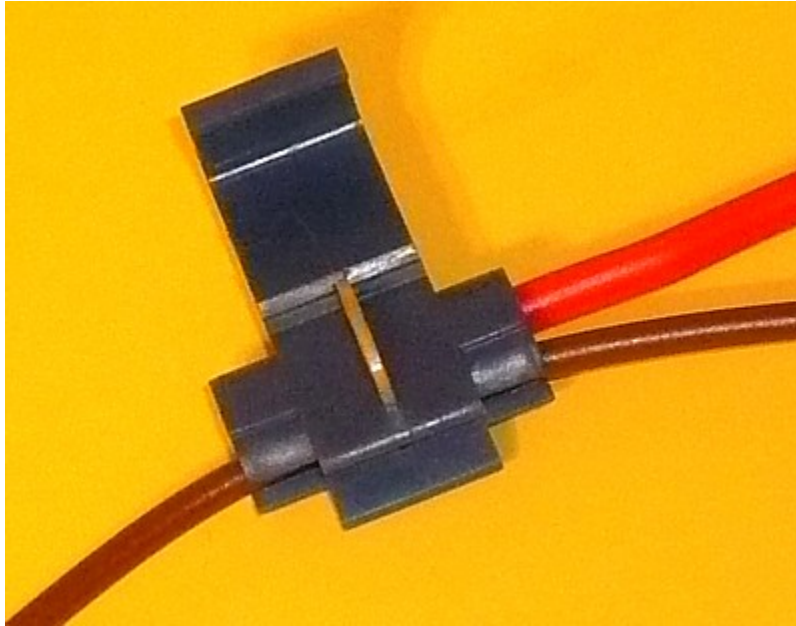
HOW TO USE THE QUICK SPLICE CONNECTORS

The quick splice connectors that may be provided with a typical kit are a real time and effort savers for the electrical connection. The procedure below will teach you exactly how to use them.

1. Insert the wire that you are adding, the new wire (red shown but it could be either the red or black) into the rear slot of the splice connector. Note that it will only fit from the right hand side when the connector is positioned as shown:



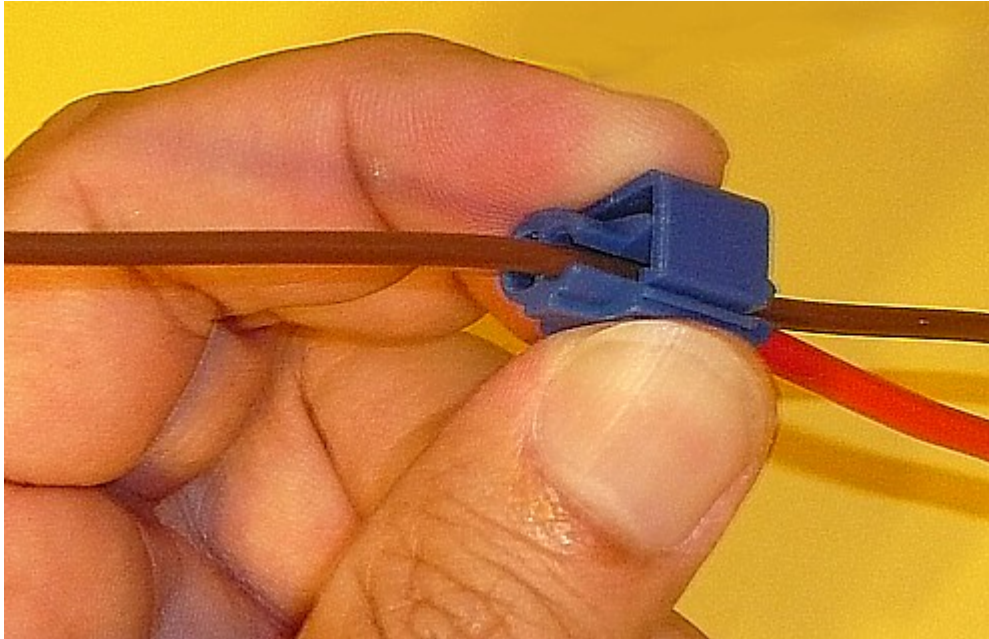
2. Insert the wire you wish to **splice to** (brown wire shown for example) into the front slot of the connector as shown:



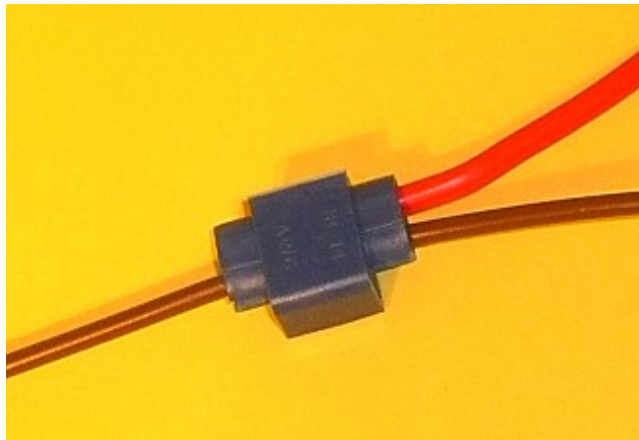
3. Using pliers press the metal connector onto the wires. This will cut through the insulation of both wires and make a firm electrical connection between them, all in one action:



4. Close the folding cover of the connector by hand as shown:



5. The final connection will look like this:



The installation will now look something like this. Note the absence of bottom support – the jar is hanging on the edge of the washer fluid reservoir. Never fell down no matter the road/speed. The bungees are pretty tight but still allow for easy removal of the device without removing any of the bungees.



STEP 3. FINAL SETUP:

Fill the jar with **DISTILLED WATER**, leaving 1" of free space at the top. Add ¼ teaspoon of Electrolyte (pure Baking Soda). Close the jar.

Adding 1 teaspoon of Electrolyte will generate much more HHO (hydrogen-oxygen mixture) but may blow the 5A fuse, in which case you should replace it with a higher rating fuse (15 Amps works for us, see notes on fuse selection below). **THE JAR MAY GET HOT. THE JAR WON'T CRACK - BUT LET IT COOL OFF BEFORE ADDING COLD WATER OR ATTEMPTING ANY MAINTENANCE ACTION.**

Inspect the installation visually. Make sure all electrical connections are tight (HAND FORCE ONLY) and the lid is screwed tight on the jar.

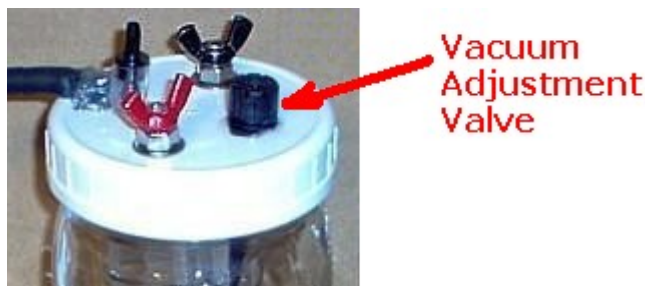
FUSE SELECTION

We have found the 5 Amps useful for moderate production of HHO – using ¼ teaspoon of Electrolyte for 1 quart of water (with 12 Volts it will draw about 1-1.3 Amp). For higher HHO production mix 1 flat teaspoon of Electrolyte into 1 quart of water, and replace the fuse with a 8 Amps to 15 Amps fuse (the device will draw 2-3 Amps in idling).

You may choose to experiment with up to 1.5 teaspoons of Baking Soda (per Quart) **but watch out for possible device overheating, especially in hot weather!!!** If the device overheats, lower the ratio of Electrolyte to water.

STEP 4. ADJUSTMENT:

1. Start with NO electricity, by taking out the fuse or leaving one of the terminals disconnected (make sure it doesn't touch metal parts of the car to prevent fuse blowout).
2. Turn the Vacuum Adjustment Valve (sometimes called "Bubbler Cap" or just "Bubbler") fully CLOCKWISE. Then turn it half-turn COUNTER-CLOCKWISE.



3. Turn the engine and watch the bubbling action coming out of the lower end of the thin tubing inside the device (here by the way is the great advantage of having a strong glass jar instead of metal or non clear plastic – total transparency and visibility!) Gradually turn the Vacuum Adjustment Valve and watch the bubbling

action in the jar. Adjust the valve until there is a small amount of bubbling action.

4. Turn off the engine.
5. Connect the electricity by putting the fuse on and making sure all connections are tight (hand force only).
6. Start the engine again and watch the electrolyzing action between the spiral electrodes. A yellowish gas (HHO) will start forming and flow toward the top of the jar.
7. Within a short time (roughly 30 seconds), you will notice that the engine starts to sound quite differently. It will sound smoother and quieter. Its RPM may be unstable for a couple minutes. This is normal – the HHO is starting to change the combustion cycle and cancels the pinging – and the engine is now adjusting to the changes.
8. In some of our road experiments we've noticed better performance and higher MPG with the bubbling totally shut off, but as far as I know it's safer to leave some bubbling even if very low, because it keeps the HHO moist at all times.

The developer told me: tune ZERO BUBBLING in HHO mode, and LOW BUBBLING in H2O mode (electricity off).

Do your tests and please tell us the results. The broader the experiment base, the more certainty there will be on the best overall tuning.

Congratulations! Your HHO **Water4Gas** system is now ready to go! Enjoy it.

This manual is based on the experiences of many clients and friends. Yet it is never complete as we keep learning all the time. Please send us as many feedbacks, experiences and solutions as you have found - for the benefit of others. Thank you!

Refer to the rest of this manual for recommended road test methods, fine tuning, troubleshooting and maintenance.

ADD-ONS, FUEL ADDITIVES

For some cars, the Electrolyzer is all that's needed for optimum gas economy. For others, some enhancement is necessary (especially stock cars 1995 and newer). For the description and tuning of the various enhancers, refer to the second book (Gas Saving Techniques). This book, whoever, contains the installation instructions for each of the add-ons/enhancers.

VAPORIZER INSTALLATION

HOW TO MAKE A VAPORIZER

Use your Electrolyzer (HHO generator) in "H2O Mode" by simply disconnecting the electricity. Or use the chapter on replicating the Vaporizer which is simpler. In whichever case you've got yourself a powerful little unit with most of the benefits of its bigger HHO brother.

You can use **TAP WATER** in this mode. Again, **NO** electrical power! One or both electrical lines should be disconnected and isolated, or the fuse taken out.

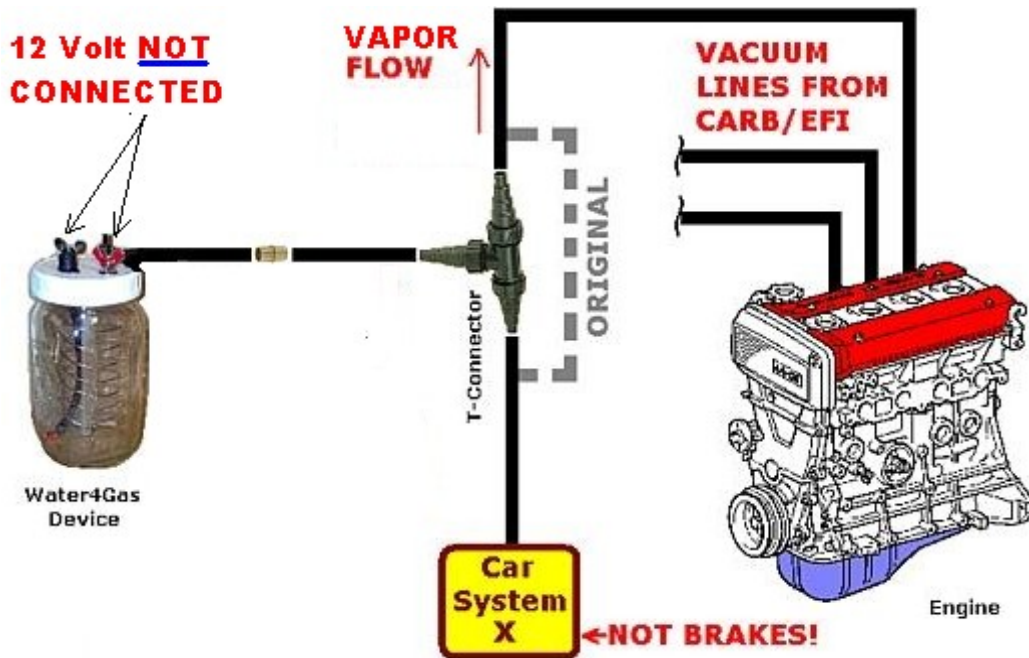
This is very useful in freezing weather: Add 1 oz of *GASOLINE ANTIFREEZE FLUID* (Heet®, Ban-ice®, Prime®, Peak®, or other brand) to a jar of TAP water (distilled water OK too), and use this to boost your engine in the cold winter months.

INSTALLING THE VAPORIZER

Mount the H2O **Water4Gas** device in the engine compartment. It should be mounted flat and level, and secured in such a manner as to assure that it cannot bounce around when the vehicle hits bumps etc. Position the device so that it is easy to access and can be conveniently removed and filled with water, or cleaned, serviced or inspected.

A mounting bracket can be easily fashioned from copper and/or galvanized plumber's strap. (Not supplied.) In other cases a small rubber pad (not supplied) and/or two bungee cords (supplied) may be adequate. Cool location is less of a problem since the device will stay cooler than in HHO mode.

The H2O **Water4Gas** device is operated by vacuum pressure from your car engine. As shown in the vacuum diagram below, vacuum lines are supplied from the engine to various car systems, and you should best use the system ("System X" in the diagram) that gets the highest vacuum. You should be able to detect substantial vacuum pressure coming from the line you are connecting to. If you want to know exactly, and especially if you're going to install in more than one car, a good vacuum gauge is available from Harbor Freight Tools for about \$10 (www.harborfreight.com or phone 843-676-2603).



Connect the vacuum line from the jar, to a vacuum line that runs to the intake manifold. Make the connection as close as possible to the intake manifold. If the vehicle has a carburetor, make the connection at or below the base of the carburetor. Frequently in older vehicles, there are spare ports available for this purpose. The PCV valve* line usually makes a good connection. Vehicles with EFI** should also be connected at or near the intake manifold.

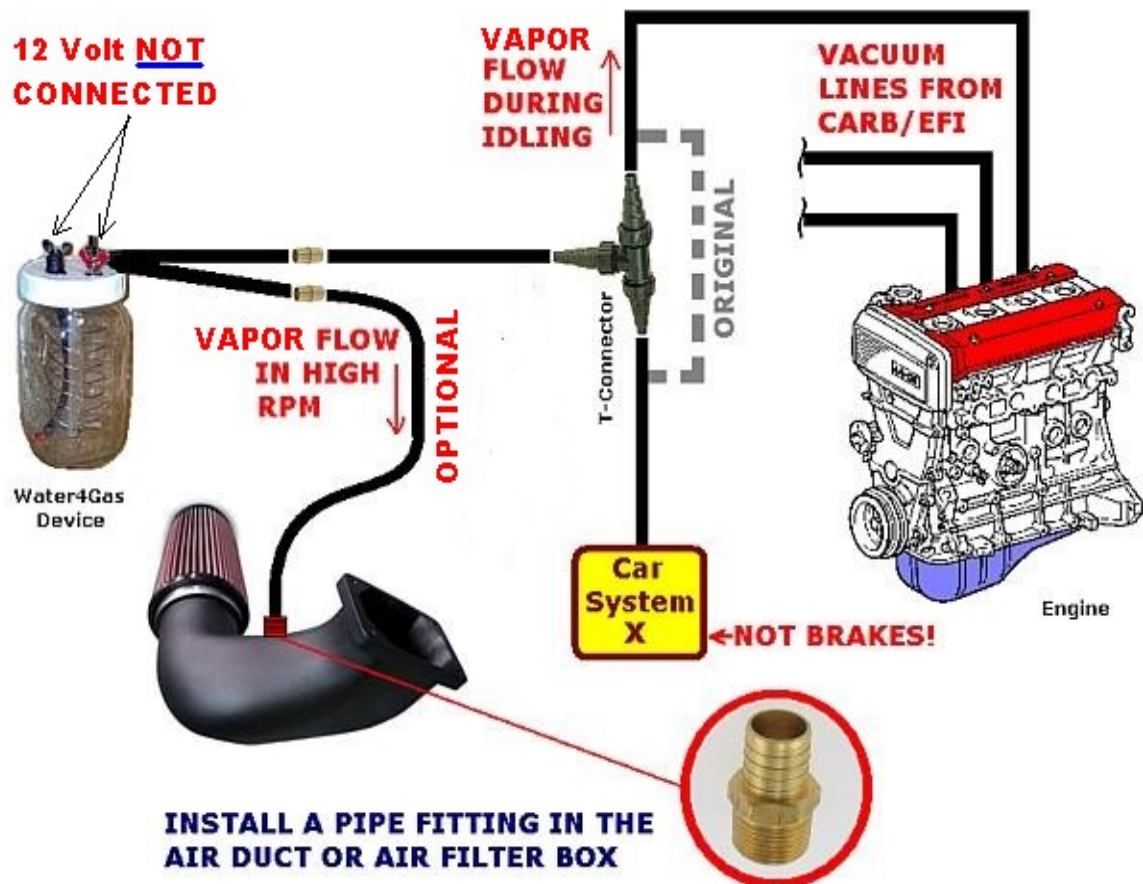
* Positive Crankcase Ventilation valve, or PCV valve, is a one-way valve that ensures continual refreshment of the air inside a gasoline internal combustion engine's crankcase.

** Electronic Fuel Injection.

A universal vacuum line T-Connector is provided as well as a length of vacuum hose to make the connection. A wide range of vacuum fittings is readily available at any auto parts store (plastic fittings will do for this use).

ALTERNATIVE VACUUM SETUP – DUAL SUPPLY

See diagram below. In this setup a SECOND line is connected from the device to the air intake of the engine. Use a universal vacuum line T-Connector (second one not provided) to make the connection. To connect the second pipe to the air intake or air filter housing, use a brass or plastic fitting, or optionally drill a small hole and glue the pipe to the duct or filter housing.



FINAL SETUP & ADJUSTMENT

Fill the jar with **ordinary TAP WATER**. Leave 1" of free space at the top. Start the engine and watch the bubbling action in the jar. Adjust the bubbler (rotary valve on the top of the jar) until there is a small amount of bubbling action.

That's it. Your H₂O **Water4Gas** system is now ready to go!

Watch the level of water weekly and add water as needed. Depending on engine and weather, one jar of water is enough for 1000-3000 miles. Unlike the Electrolyzer in which there are electrodes to cover with water, this unit will still function with less than ¼ of its water capacity. I'd say between ¼ and ½ it's time to refill.

In freezing weather it's hard to say when to add the Gasoline Antifreeze Fluid. I think 1 oz will last 1000 miles, but we'll have to wait till next winter to find out. If you're in a cold area please tell us what you get in the winter. Out here in Los Angeles the sunshine is in an "always on" mode so I can't test it myself.

MULTI-CELL

WHY USE MULTI-CELL?

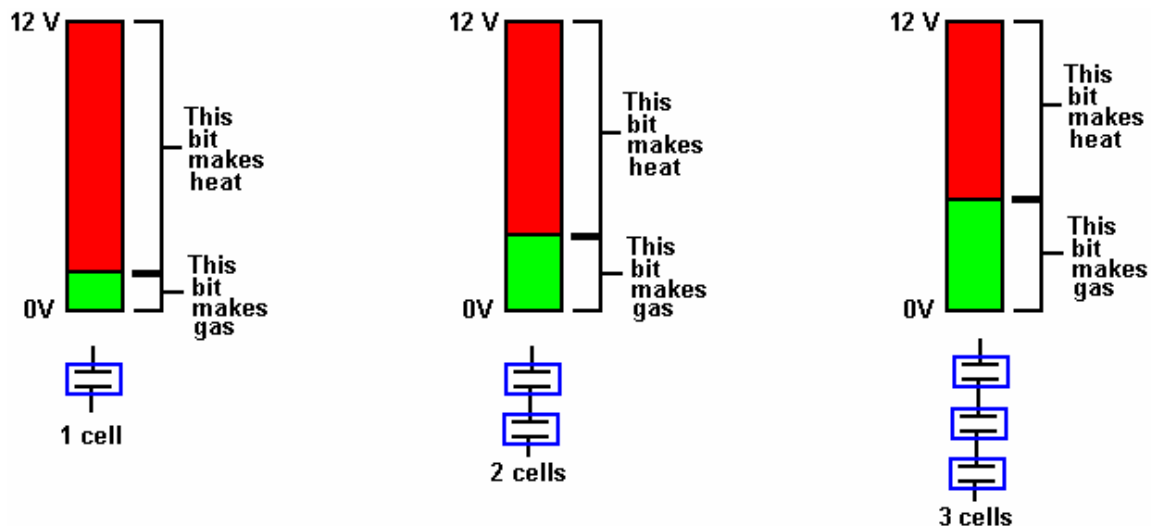
The description below is borrowed from Patrick Kelly's document "D9.PDF"

The current flowing through the cell determines its HHO production. This is an absolutely key factor in gas production, and one of the most difficult to control accurately and economically. The greater the current, the greater the rate of gas production. The current is controlled by the concentration of Baking Soda in the water and the voltage across the cell. The voltage across the cell has limited effect as it reaches a maximum at 1.24 volts. Up to that point, an increase in voltage causes an increase in gas production rate. Once the voltage gets over this limit, increasing it further produces no further increase in the rate of gas production.

If the voltage is increased above 1.24 volts, **the extra voltage goes to heat the water.** This can be a slight advantage, but not much. (The advantage is that heat creates more water vapor which is good for cooling down the engine.)

Let's look at the math. We'll simplify it here for the sake of understanding. Assume that the current through the cell is 2 amps. In that case, the power used to produce gas is 2 amps x 1.24 volts = **2.48 watts**. When the engine is running, the voltage at the car's battery terminals will be about 13.8 volts as the alternator provides the extra voltage to drive current into the battery. The excess voltage applied to the cell is about 1.24 less than that, or 12.56 volts.

The power which heats the electrolyte is now 12.56 volts x 2 amps = 25.12 watts. **That is more than ten times the power being used to produce gas!** This is very inefficient. The following diagram will help you understand the situation.



In short: The more cells, the less heat and more HHO. Or, more correctly, higher energy efficiency for HHO production. This is true up to 6 or 7 cells max.

So the best way to reduce heat and increase HHO production is to reduce the voltage applied to the cell by using more than one cell, or in other words several cells connected in a daisy-chain across the battery. With two cells, each will get about seven volts across it and the gas production will be doubled. If space in the engine compartment allows, a chain of six cells can be used which means each receives about two volts and the waste power is reduced to an absolute minimum - while the gas production is six times higher.

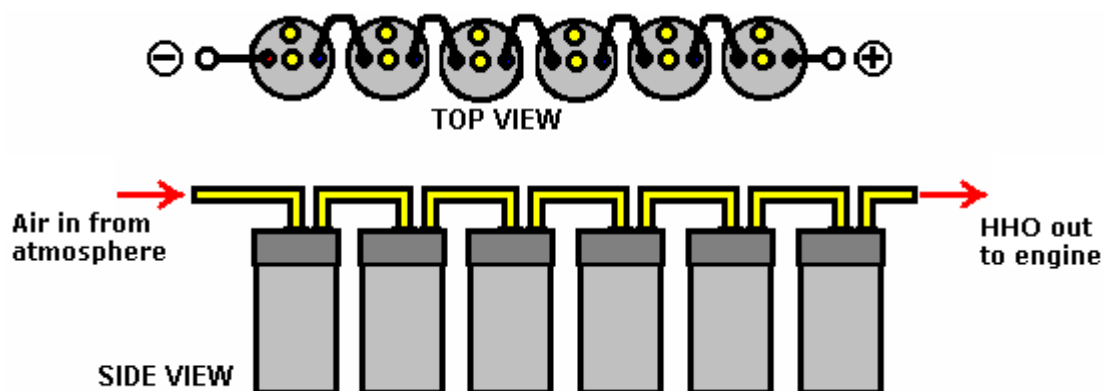
With the higher rate of gas production, it would probably be possible to reduce the chosen current flowing through the cell (good for smaller batteries and alternators such as in gas scooters and go carts). Also, with six cells, the amount of water is six times greater and so there will be less concentrating of the electrolyte due to the water being used up.

Let's summarize the benefits of the multi-cell setup:

1. Multiply HHO production,
2. Reduce heat,
3. More water stored in the system.

HOW TO BUILD A MULTI-CELL

If there is room in the engine compartment, then anything up to seven of these cells may be installed and connected in series across the battery. The pipework is daisy-chained from cell to cell so that the air drawn into the engine passes through each cell, picking up more and more gas on the way, as shown below:



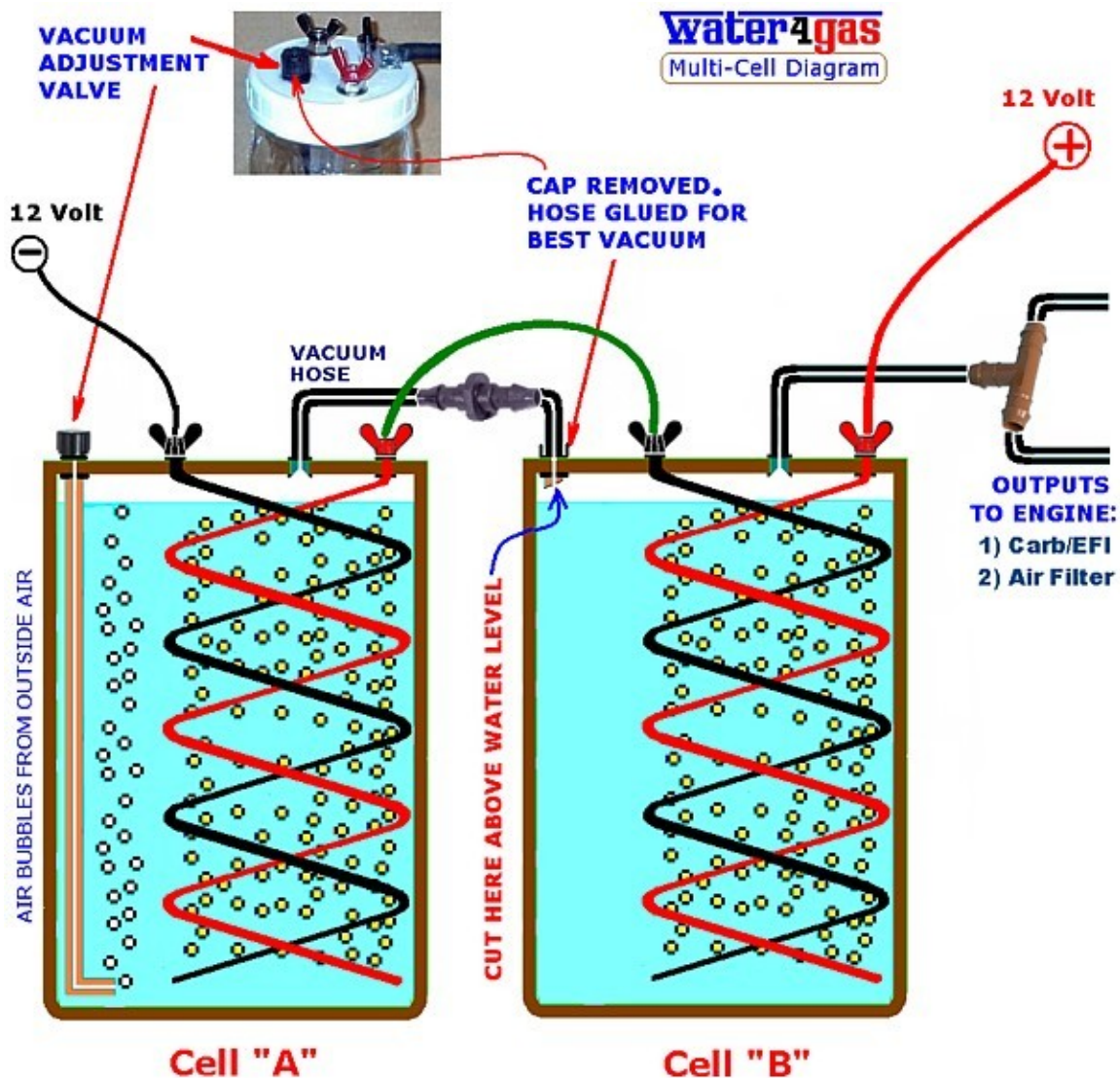
This diagram shows the electrical connection between the cells while the lower diagram shows how the air/gas pipes are connected. While the cells are shown side by side in the diagram, they can be positioned in any convenient locations in the engine compartment. As the temperature in the engine compartment can be quite

high, the cell housings need to be unaffected by high temperatures, which make some plastic containers unsuitable for this use.

DETAILED SETUP

The setup recommended above is called a "Series-Cell" arrangement. The Diagram below displays an array of two **Water4Gas** cells. It is blown up for details, so you'll know exactly what to do at each point. Yet any number of cells can be built in accordance with the same diagram. Just add more "B" cells and connected them all in series as shown.

The output doesn't have to be double - you may choose to feed only the carburetor, or only the air filter, etc. It is recommended to glue the vacuum hose into the bubbler input (Goop glue for best flexibility). For easier maintenance make sure there is a barb coupling on the hose between adjacent cells, otherwise it would be hard to take off the lid for maintenance.

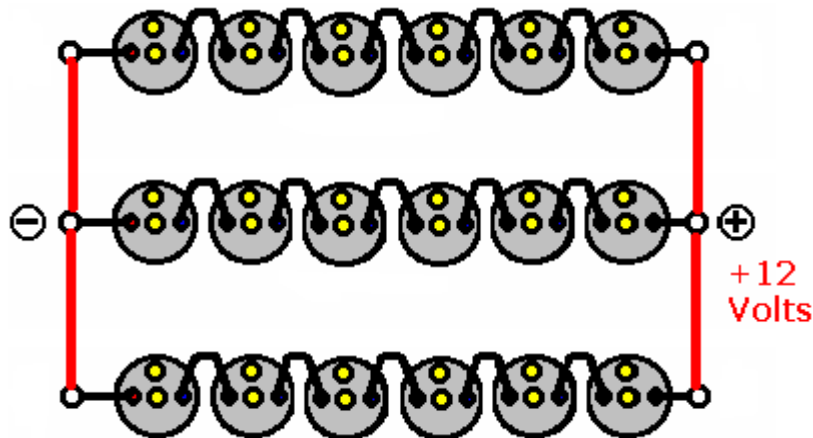


MORE THAN 6 CELLS POSSIBLE

I know of an 80-cell arrangement that a company sells for about \$12,000. They keep their structure in secrecy so I can't tell exactly how they have arranged those 80 cells. But I can tell you a simple way to exceed the 6-cell design.

For simplicity, let's talk about multi-cell arrangements of multiple sixes. You take the 12 Volts and connect it to EACH 6-array "Series-Cell" arrangements. So now each six are connected in series, and then those 6-arrays are connected IN PARALLEL.

Confused? The diagram below shows what I'm talking about. Make sure the wiring is thick enough for the job, and that your ALTERNATOR is strong enough for the job! If you're not sure, consult your auto mechanic. I would protect each 6-array with its own fuse.



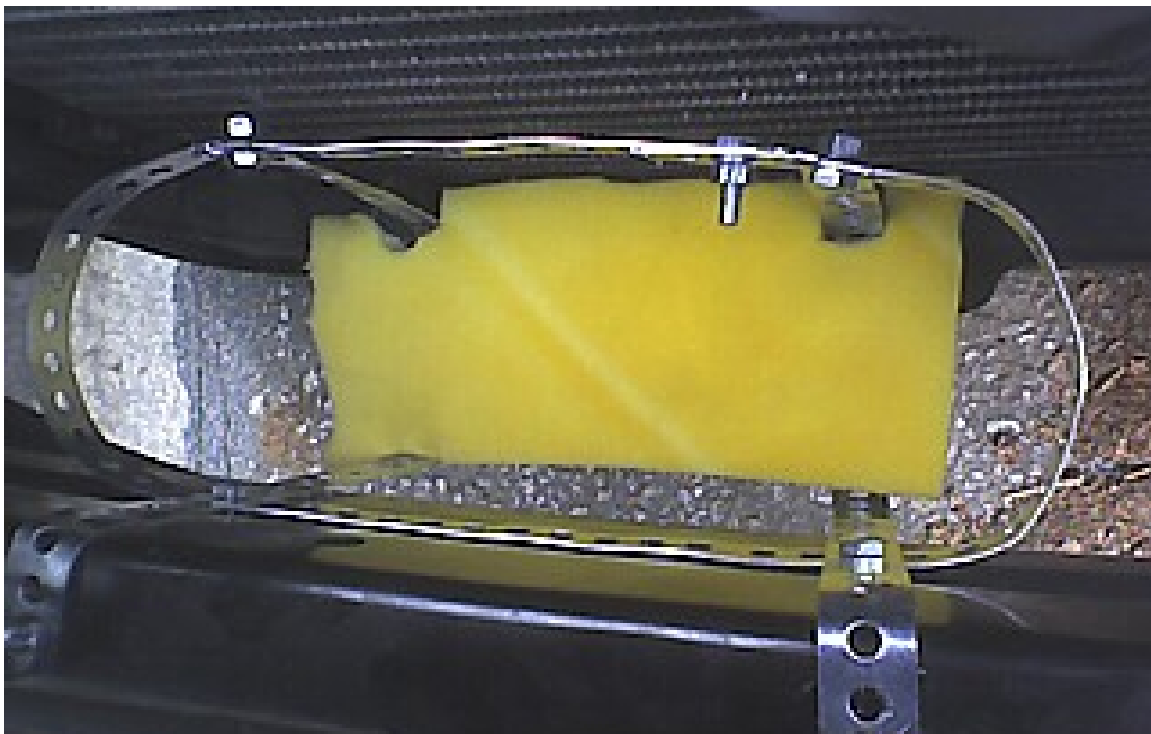
How would the vacuum connections go? Well that depends on how many cells. If the vehicle's vacuum is not strong enough to "pull" so many cells, which is probably true for most vehicles, than a pump needs to be added. In that case I would add a check valve at the output of each 6-cell array and connect all into one big output after the check valves. Feed this output to the air filter, or experiment... until the car takes off and flies!

MECHANICAL ARRANGEMENT

Back with a more serious note, I found the front area of many cars and trucks most convenient for installing the multi-cell. Six cells will probably fit nicely, in a line, just in front of the radiator. Some of the air to the radiator would be blocked, but not all if you leave some space between the cells. Air stream will then curve itself around the cells and reach the radiator. Additionally, if we take into consideration the cooling effect of these cells on the engine, there shouldn't be a problem with some blockage of air stream.

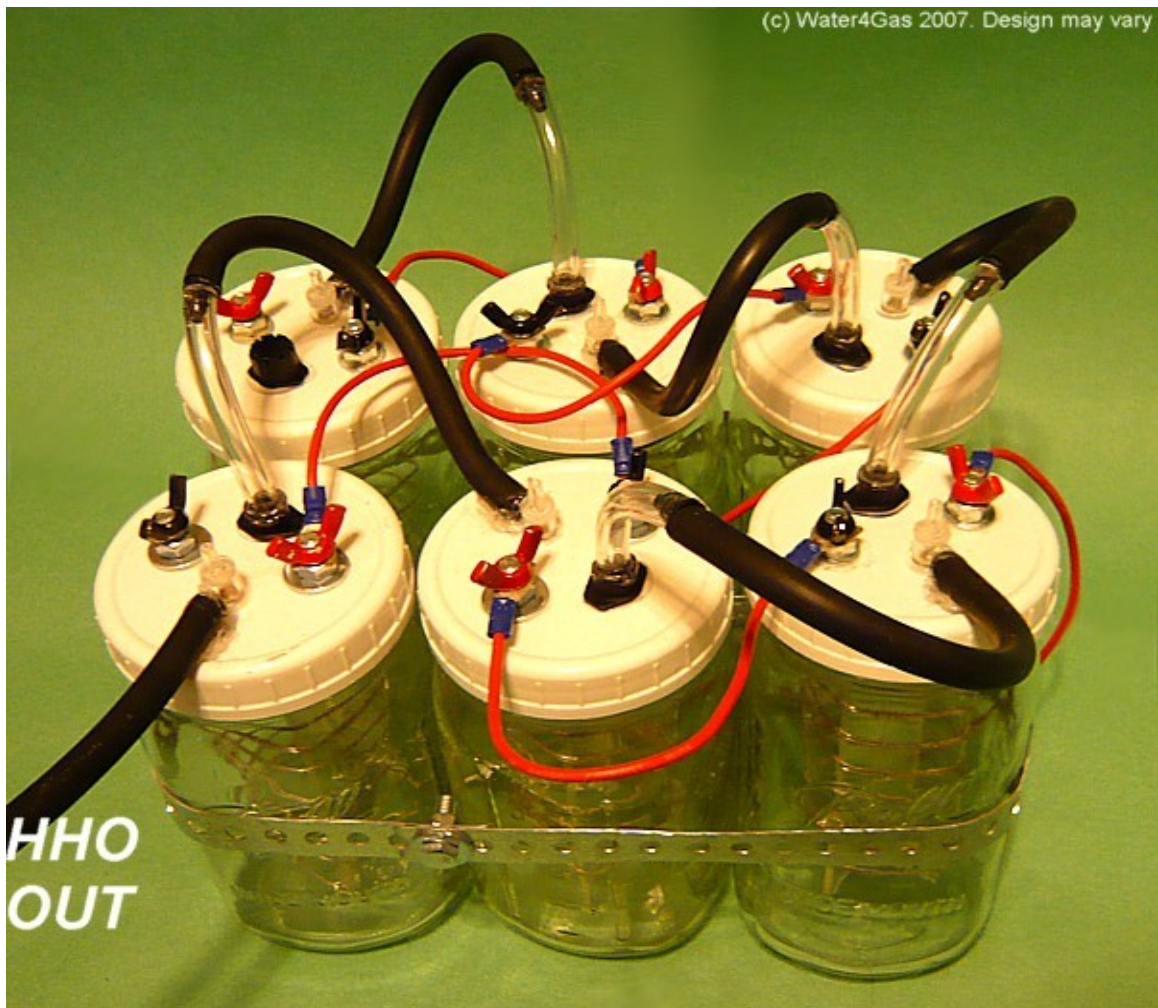
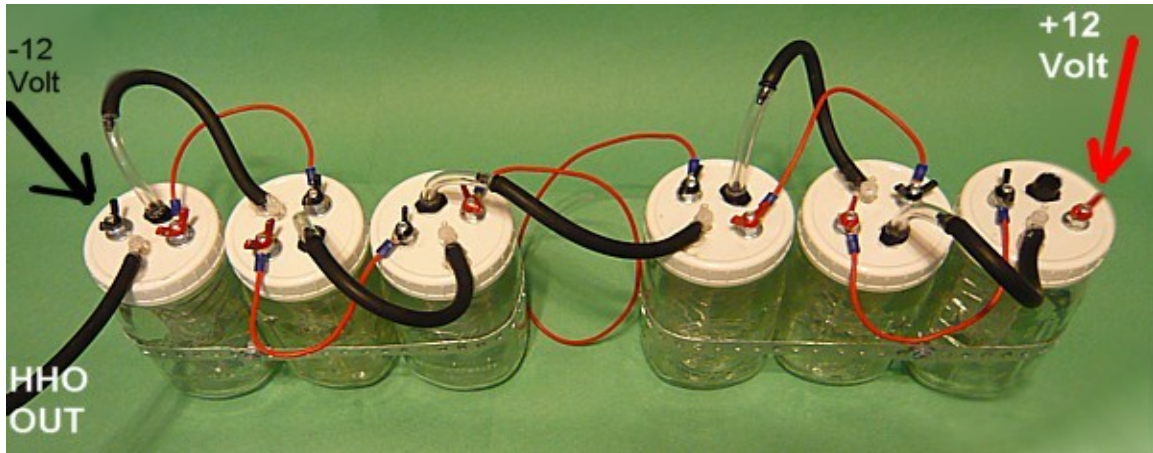
As for heat, the cells would be in one of the coolest places under the hood. Make sure to protect the jars from mechanical shock by well-glued foam stripes, or similar shock absorbing material.

The photos below show my mechanical installation in a Toyota. The materials: Hanger Strap from Home Depot (bar code 03875333929-0 or similar) and 1/4" bolts/nuts.



REAL-LIFE SAMPLE AND EXPERIMENTATION

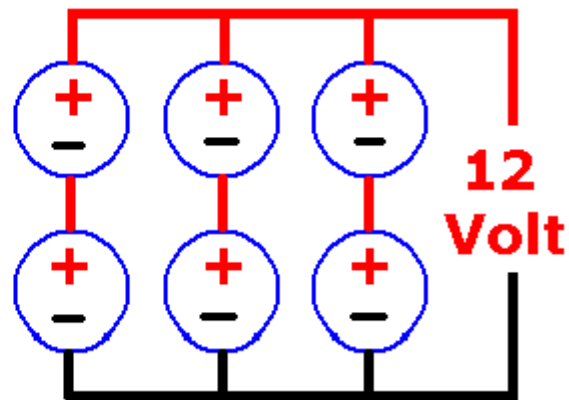
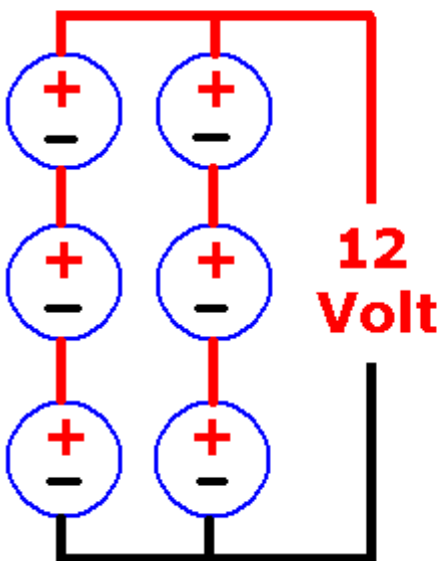
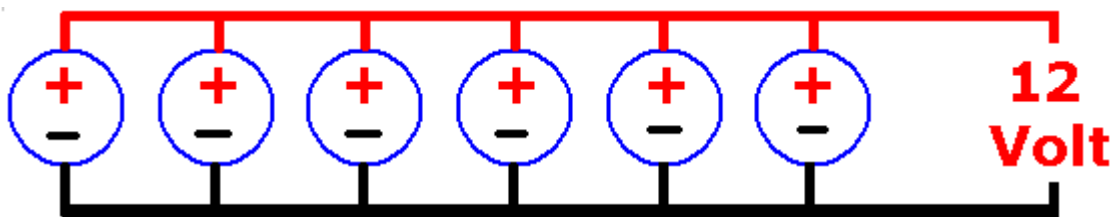
The photos below show an experimental design of a multi-cell based on the regular **Water4Gas** single-cell device. I have installed it on my Toyota with great success.



(c) Water4Gas 2007. Design may vary

April 2007: in tests I've conducted in my Toyota Corolla, the electrical serial connection recommended above has failed miserably (told you it was theory ;-)

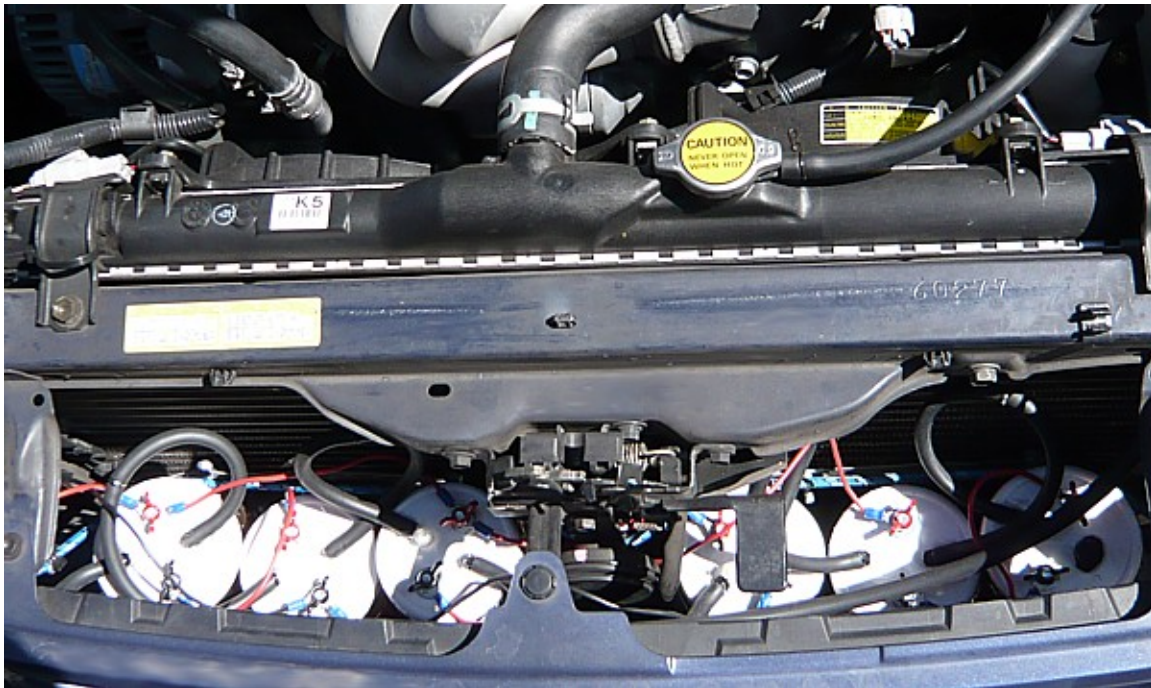
In a preliminary experiment it worked well with TWO CELLS: there was more HHO and the cells stayed pretty cold. Once I put ALL SIX CELLS IN SERIES, it acted weird. Each cell was getting an even 2 volts as expected, but the current flowing through was only 5 milliamp (five thousands of an Ampere) and therefore HHO production was next to zero. I started adding more and more baking soda. By the time EACH CELL had 36 (!!!) teaspoons of baking soda, the current went up by 1 lousy milliamp... At that point I gave up. After testing several setups shown below, I chose the arrangement where **each pair of cells gets 12 Volts**, as shown below:



THIS ARRANGEMENT WORKS BEST

UPDATE 28 JULY 2007

The arrangement with the three pairs (bottom right in the diagram above) has been working in my car for almost 4 months WITHOUT ANY MAINTENANCE WHATSOEVER. The devices always stay very cool, the water goes down very slowly (lost about 25% in four months), and produces a lot of HHO. With **8 teaspoons soda per cell**, it draws a total of 6 amps, or 2 amps per line. This means each cell consumes 6 volts x 2 amps = 12 Watt. That's bird feed, man. Multiply that by six cells and the entire multi-cell dances on only 72 Watts! It's like a single high power halogen headlamp. Many car stereo systems today consume more than that.



After 4 months of zero maintenance the water were not very dirty, not for such a long time; the stainless steel electrodes grade 302/304 (not the good grade 316L that I use now) did not corrode by much but I reversed the polarity just in case. Cleaned it all with toothbrush and tap water and it's almost like new again. **I like the idea of having to service the system only 3 times a year!!!** What say you?

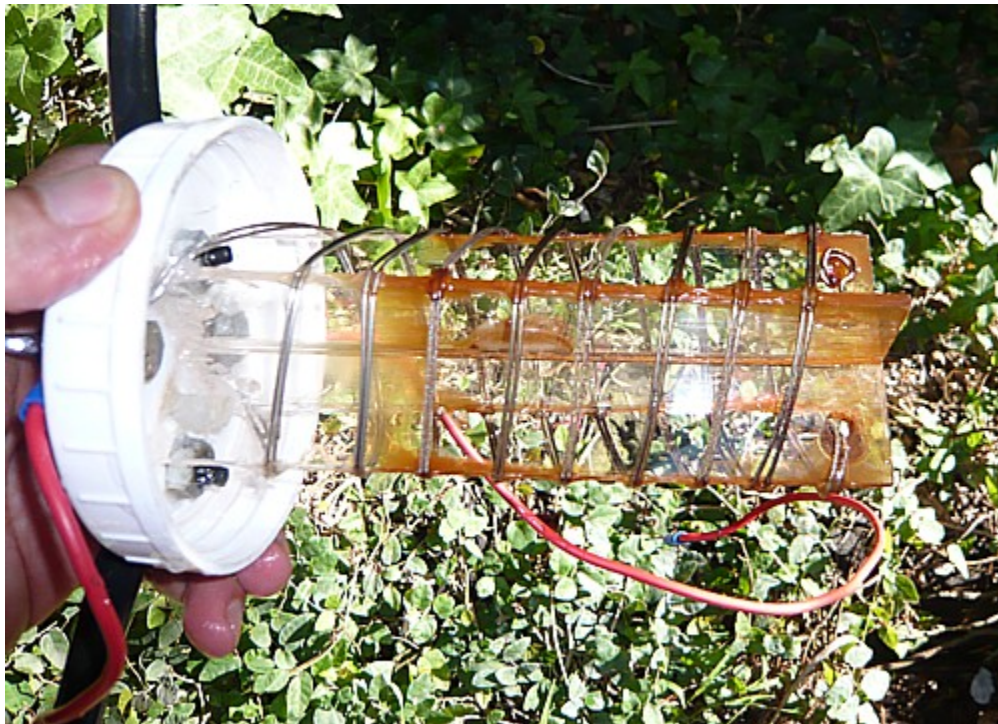
You can see some more details in the photographs below. The arrangement shown in these photographs is electrically connected in three pairs as recommended above. The HHO is fed from cell #1 to cell #2 and so forth, and finally collected with a SINGLE hose from the output of cell #6.



This is how each of the six cells looked like after 4 months. You can see that most of the water is still there – I could have gone 6-7 months without adding water:



After a wash and a little scrubbing with an old toothbrush under water, it looked almost as new:



UPDATE 4 SEPTEMBER 2007

I've been asked by many about the exact advantage, in MPG, of going through the trouble to build and install this arrangement. I have made the tests and the numbers are:

- The six, drawing only about 6 Amps total, achieved my best mileage ever, 61.13 MPG average (i.e., including uphill) at 52-53 Miles Per Hour. Compared to 51.66 MPG of the 1 cell.
- The difference in mileage is 18% between the 6-cell and a single one. In other words the multi-cell is 18% more efficient.

Is this impressive? Depends on how important it is to you to save gasoline. As far as I can see the most significant advantage, for me, is being able to drive 4-6 months without maintenance OR refill.

PCV ENHANCER INSTALLATION

IMPORTANT - RECOMMENDED HOSE TYPE

To connect the PCV Enhancer to the engine, use only the type of hose shown below from your **NAPA Auto Parts Store**: **Fuel Hose (or fuel line) – PCV/EEC Hose**

Store locator at <http://www.napaautocare.com/locator/StoreLocator.aspx?st=0>

DO NOT USE REGULAR RUBBER HOSES because they will warp and possibly crack under the high temperature of PCV air flows. Vinyl tubing will shrink under the strong vacuum, thus blocking free passage.

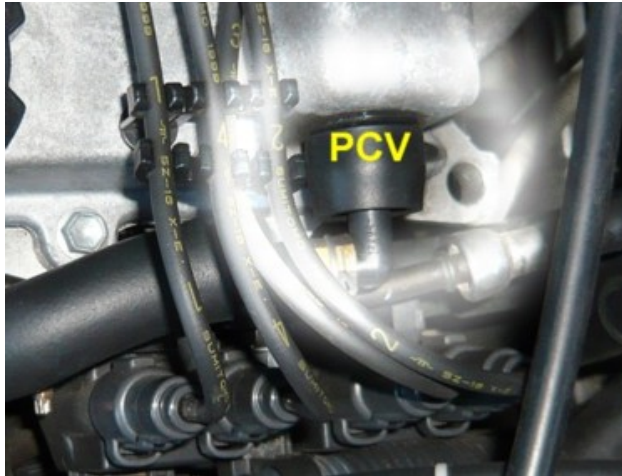
The H-176 hose specified above will fit 3/8" PCV's which is normal size. In case you need a different size for your PCV line, consult the manufacturer – Gates** (address below) - or your nearest Napa Auto Parts store (store locator: <http://www.napaautocare.com/locator/StoreLocator.aspx?st=0>)

**The Gates Rubber Co.
1551 Wewatta Street
Denver, CO 80202, USA
Phone: 303-744-1911
Website: <http://www.gates.com>

INSTALLATION PROCEDURE

1. Warmly recommended: clean the existing PCV valve in thinner, or replace it with a new one.
2. Locate the PCV Valve if you haven't done it so far. Wikipedia says regarding possible locations: "The PCV valve connects the crankcase to the intake manifold from a location more-or-less opposite the breather connection. Typical locations include the opposite valve cover that the breather tube connects to on a V-engine. A typical location is the valve cover(s), although some engines place the valve in locations far from the valve cover."

Your car's maintenance manual (find it at your the auto parts store) tells you right away where each major part is located. Usually be the first couple pages in the engine-related book. Another source is www.AutoZone.com – click "Repair Info" and then select "Components Location".



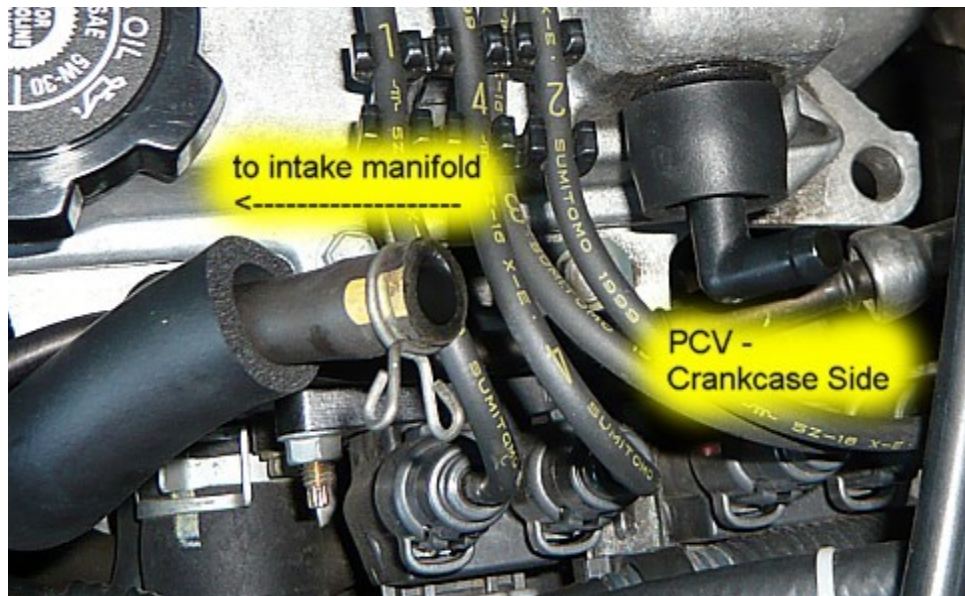
3. Under the hood, choose an easy to reach space for the PCV Enhancer. The device itself needs only a small space - but remember that you'll need access to check the contamination level and also be able to reach it with your hand for cleaning.

The best position would be below the level of the intake manifold (to enable water to sink into the device after the engine has stopped, rather than dripping back into the engine). Due to its plastic parts it is also recommended to keep the PCV Enhancer away from engine heat as much as possible, but no more than 2 feet away.

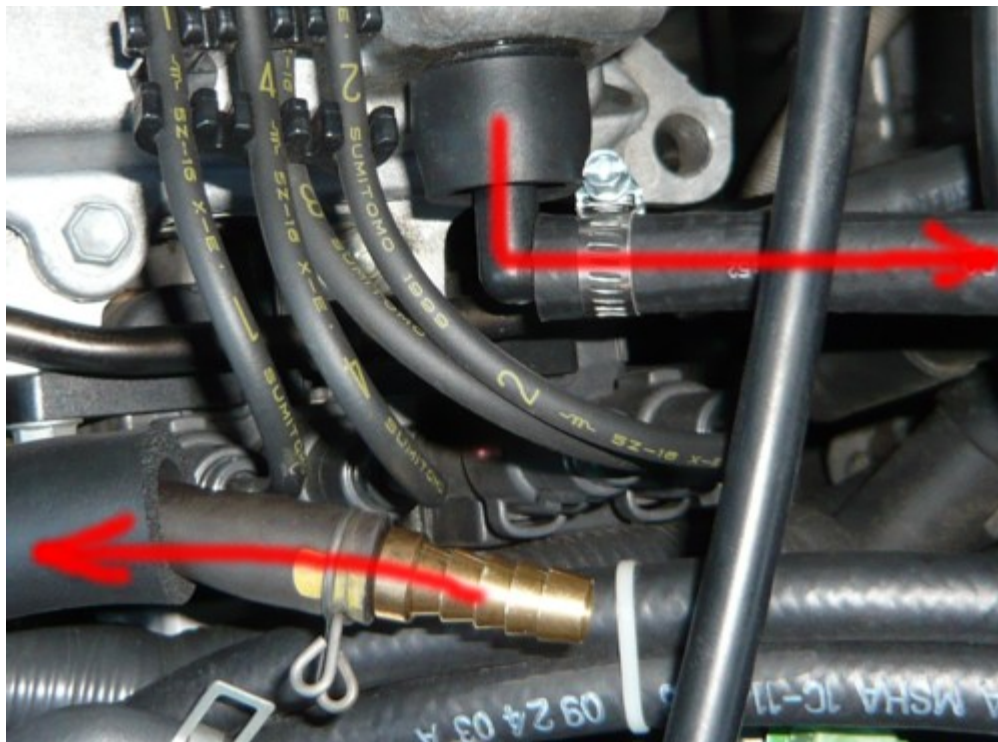
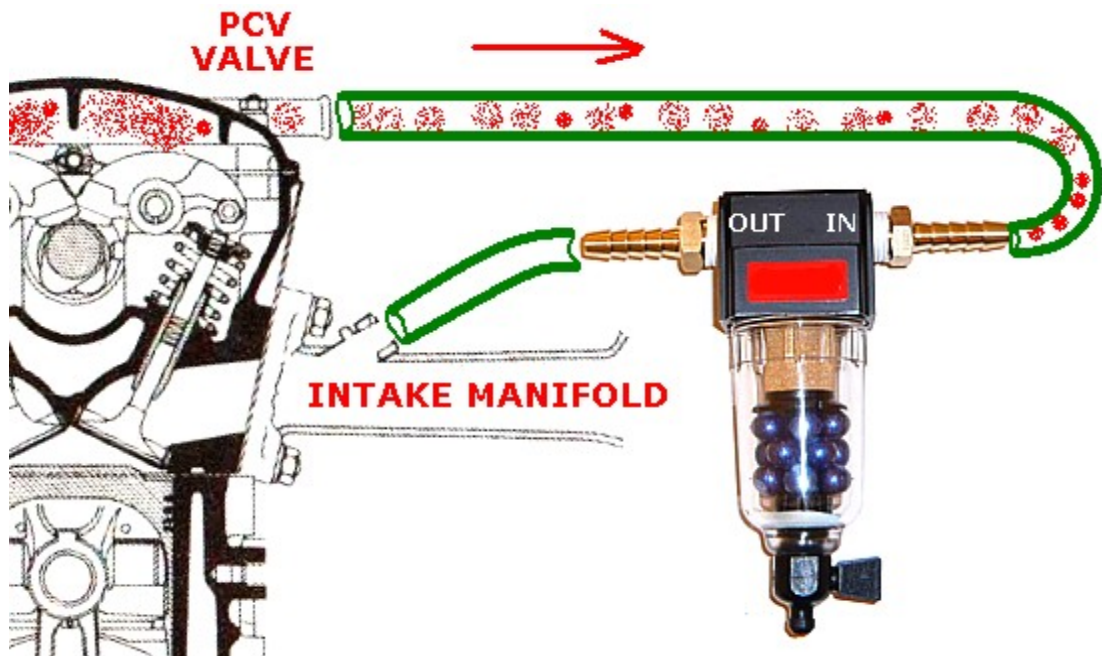
I chose a location at the of level of the PCV and easily accessible from the side of the car, near the brake drum.



4. If you want to, and if there is something in the vicinity to hang on to, you can add brackets to the PCV Enhancer (use the 4 threads at the upper body of the PCV Enhancer, they look like they'll take standard 1/8" screws). Then install those brackets to the car. If not, attach the device using bungee cords. To protect the device it can be positioned into a plastic can and/or padded with durable foam.
5. Disconnect the hose attached to the PCV Valve. Make sure you understand where the air flow is going in the system (start the engine for a second and see for yourself if you're not sure). This is important because the PCV Enhancer has a certain AIRFLOW DIRECTION even though it may seem symmetrical at first look.



6. Connect the **OUTPUT** of the PCV Enhancer [the black filter housing is embossed with clear IN and OUT markings] to the intake manifold port for the PCV Valve, as shown in the picture below. Use 3/8" hose. You can use the original hose if it can reach the location of the enhancer.



IMPORTANT: The hoses should **not** have any low spots that might collect water (since this water will freeze in cold weather and block the PCV system). Any liquid that may accumulate in the in or out hoses should be free to run into the enhancer when the engine is shut off.

7. Inspect the installation visually. Make sure all hoses are secured with clamps. Make sure the filter bowl (the transparent part) is tight – **hand** tight only!

8. Add a cap at the bottom opening on the PCV Enhancer. Closing the valve will not actually close it because the Husky filter was designed for POSITIVE pressure and will stay open under vacuum. The cap can be any ¼ cap, even as simple as a piece of hose with a bolt tightly screwed into it.



9. Start the engine and check the system by observing the transparent filter bowl. You should be able to see condensation – this is an indication that the system is working.
10. It is advisable to protect this device by placing it into a plastic bowl or bottle, as shown >>>



PCV ENHANCER MAINTENANCE

One interesting and important feature of the structure is its materials. The upper parts are mostly metal, while the bowl is polycarbonate (clear plastic). The Husky filter is rated for maximum temperature of 125 degrees Fahrenheit. Depending upon distance from the engine and air flow through the engine compartment, ambient temperature may deform the device after a while. It is therefore recommended to locate it as far as possible from the engine (say 1-1.5 feet away) where there is enough air flow to cool it off below 125 Fahrenheit.

As for the temperature of the gases coming out of the crankcase, these may be hot. The only answer to this is that the filter is too cheap to worry about (\$11), if it goes, it goes - replace it when it stops functioning. The filter element is made of Zinc and is estimated to last longer than the plastics, so you don't have to worry about replacing it. **Just keep it clean by washing with alcohol from time to time.**

The PCV Enhancer will fill up at a rate that is hard to predict; it depends on engine size and condition, and a LOT depends on the weather – at winter more water will be condensed in it. Locating it in a warmer area (such as right behind the radiator) during winter driving will cause less water to be collected.

It is recommended to empty it before it is half full, to allow enough air to circulate through the transparent bowl.

The next page shows the replacement parts for the PCV Enhancer. As far as I've seen Home Depot does not hold stock of replacement parts. For assistance with replacement parts call **Husky** at **1-800-543-6400**. Hours of operation: Monday-Thursday 8am-5:30pm, Fri 8am-5pm, Eastern Time.

I doubt if the barb adapters will ever wear out, however they can be obtained from Home Depot, the plumbing department. The glass balls may be replaced with any metal ball bearings. Preferably large, at least 1/4" (6mm) in diameter. They may be copper plated etc, or even glass, all you need is something cold to condense the water vapor passing through the bowl.



Replacement Parts List

Ref. No.	Description	Part Number	Qty.	
1	Polycarbonate Bowl	SV041000AV	1	} HUSKY
2	Filter element	●, ■	1	
3	Bowl o-ring	■	1	
■	Filter element kit	SX128900AV	1	
●	Replacement filter elements	MP513900AV	2	} HOME DEPOT
4	3/8" Hose Barb Adapter	A-293	2	

FUEL HEATER INSTALLATION

REQUIRED INSTALLATION HARDWARE

To connect the Fuel Heater you will need barbed fittings that fit your car's fuel lines - we can't guess what inner diameter they may be. They will look something like this...



...or like this (from smaller diameter to larger):



The hose specs below are for the **minimal quality** hose. **DO NOT USE CHEAP HOSE!** You can either use **steel-braided Teflon hydraulic hose** from a hydraulic supply store, or the type shown below which is from the **NAPA Auto Store** (locate a store near you by visiting <http://www.napaautocare.com>).

The first kind is cheaper (about \$2.40/ft) but requires special fittings (about \$2 each end) that any hydraulic supply store can prepare for you. The second type from NAPA is more expensive (\$5.95/ft) but can slip on directly on the Fuel Heater.

In my opinion the second type is much safer for high temperature, high pressure fuel. It looks like simple rubber but it is far from it.



Fuel Injection Hose

Recommended for **clamped** hose applications on all fuel systems, including fuel injection systems. Not designed to be coupled on fuel injection hose assemblies.

Fluoroelastomer liner resists permeation and alcohols, Hypalon* backing combats heat, polyester braid reinforcement increases strength and Hypalon cover fights heat up to +300°F (+150°C), ozone and abrasion. Meets SAE 30R9 requirements.

Approved for gasoline, alcohol blends and diesel fuel. Resists "sour gas" (hydroperoxides) produced in some recirculating fuel systems. Can be used with 100% methanol.

I.D. (In.)	I.D. (mm)	Work. Press. (psi)	Length (Ft.)	Part No.	I.D. (In.)	I.D. (mm)	Work. Press. (psi)	Length (Ft.)	Part No.
1/4	6.35	180	2 Clamshell	H201	3/8	9.52	180	2 Clamshell	H203
1/4	6.35	180	10	H204	3/8	9.52	180	10	H206
1/4	6.35	180	25 Reel	H210	3/8	9.52	180	25' Reel	H212
5/16	7.93	180	2 Clamshell	H202					
5/16	7.93	180	10	H205					
5/16	7.93	180	25' Reel	H211					

*Hypalon is a registered trademark of DuPont.

FIRE HAZARD!!! DO NOT USE REGULAR FUEL HOSE FROM THE AUTO PARTS STORE because it will crack under the pressure (60+ psi) and high temperatures (180-200 degrees Fahrenheit). The hose type shown here is manufactured by Gates* (full contact below) and its product number is 4219-6204. Your Napa auto parts store knows it as H204 or H-204, available in stores only.

*The Gates Rubber Co.
1551 Wewatta Street
Denver, CO 80202, USA
Phone: 303-744-1911
Website: <http://www.gates.com>

INSTALLATION PROCEDURE

The photos show an installation in a Toyota Corolla. Every vehicle will be different but these photos will help you get the idea. Don't use the Thermoid hose shown in the photos – use the hose specified above. Thermoid or Goodyear hoses may hold for a short while, but if it needs replacement then (a) you'll be losing time and money on new installation, and (b) if leaks develop you'll be losing fuel and possibly create a fire hazard. So you'd better invest a few more dollars in a **good** hose (in the Corolla's example it would be a \$30 difference) and prevent trouble.

(Step 0). Before starting we **RELEASED THE FUEL PRESSURE** so it doesn't squirt when cutting the line!

(Step 1). We chose a location on the upper radiator hose, at its hottest point. The extension hoses were already connected to the Fuel Heater and secured with 3/8" stainless steel clamps. **ALWAYS USE SOAP ON THE BARBED FITTINGS to slip them into place.**



(Step 2). The original fuel line was cut near the firewall, where the fuel line arrives from the gas tank:



(Step 3). New barbed BRASS fittings were installed on each of the cuts. Again, **ALWAYS USE SOAP ON THE BARBED FITTINGS to slip them into place.**



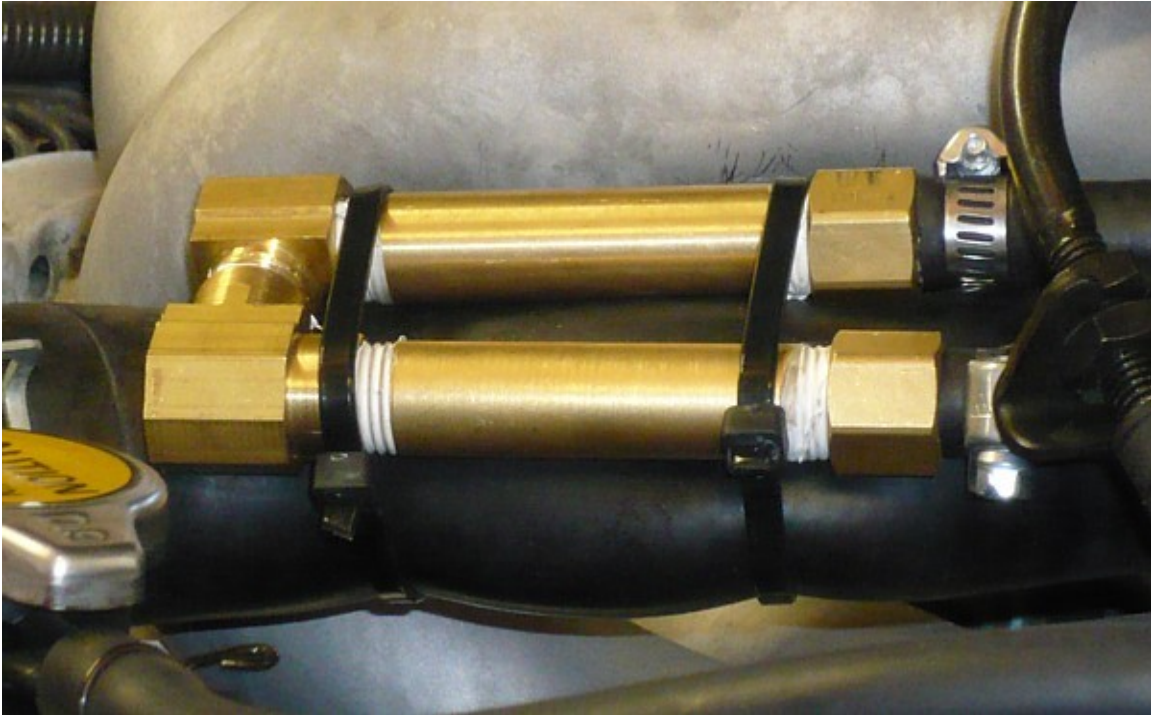
(Step 4). We secured every connection using 3/8" stainless steel clamps.



(Step 5). The new lines were routed to the Fuel Heater and secured with several SMALL cable ties.



(Step 6). The Fuel Heater was secured to the radiator hose using cable ties. **The black ties are more durable in hot areas.**



(Step 7). A quad layer of aluminum foil was wrapped around the Fuel Heater...



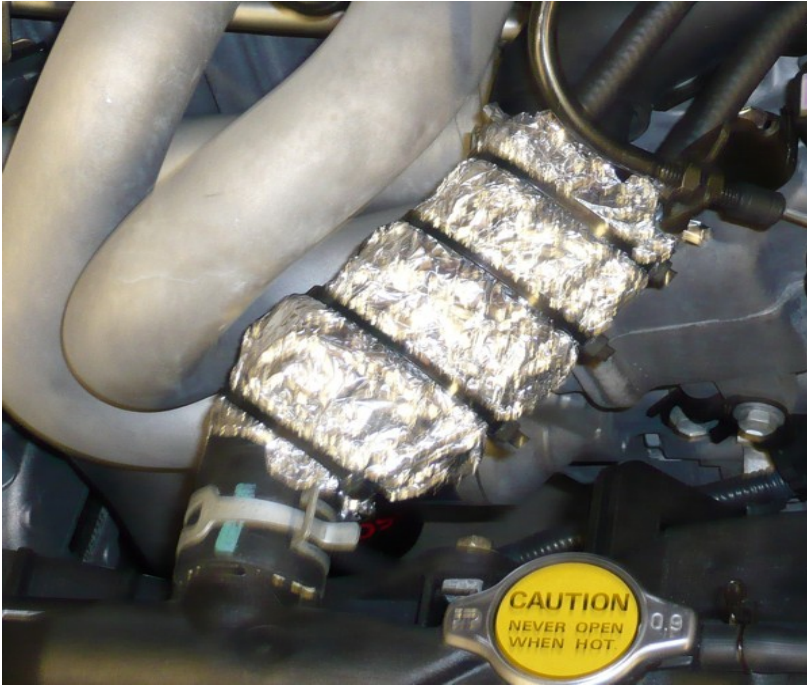
(Step 8). ...and then secured with several cable ties (the long cable ties are excellent for this purpose):



(Step 9). Now a second layer of aluminum foil was wrapped around the whole thing...



(Step 10). ...and secured with several more long cable ties:



(Step 11). We secured all the lines to existing hardware so they don't rattle and become loose.



(Step 12). Before starting the engine **INSPECT FOR POSSIBLE LEAKS.** Recommended for older cars: new fuel filter! **Start the engine and verify no leaks!!!**

(Step 13). Optionally you can now wrap the entire Fuel Heater area with **duct cloth** for extra protection. We skipped this part. In any case DO NOT USE DUCT TAPE because its glue might melt or burn/stink.

(Step 14). After two weeks of driving around, inspect ALL PARTS of the installation for possible leaks or loose connections. Make sure that no sharp bends have developed on the fuel lines that may block free passage.

INSTALLING ELECTRONIC ENHANCERS

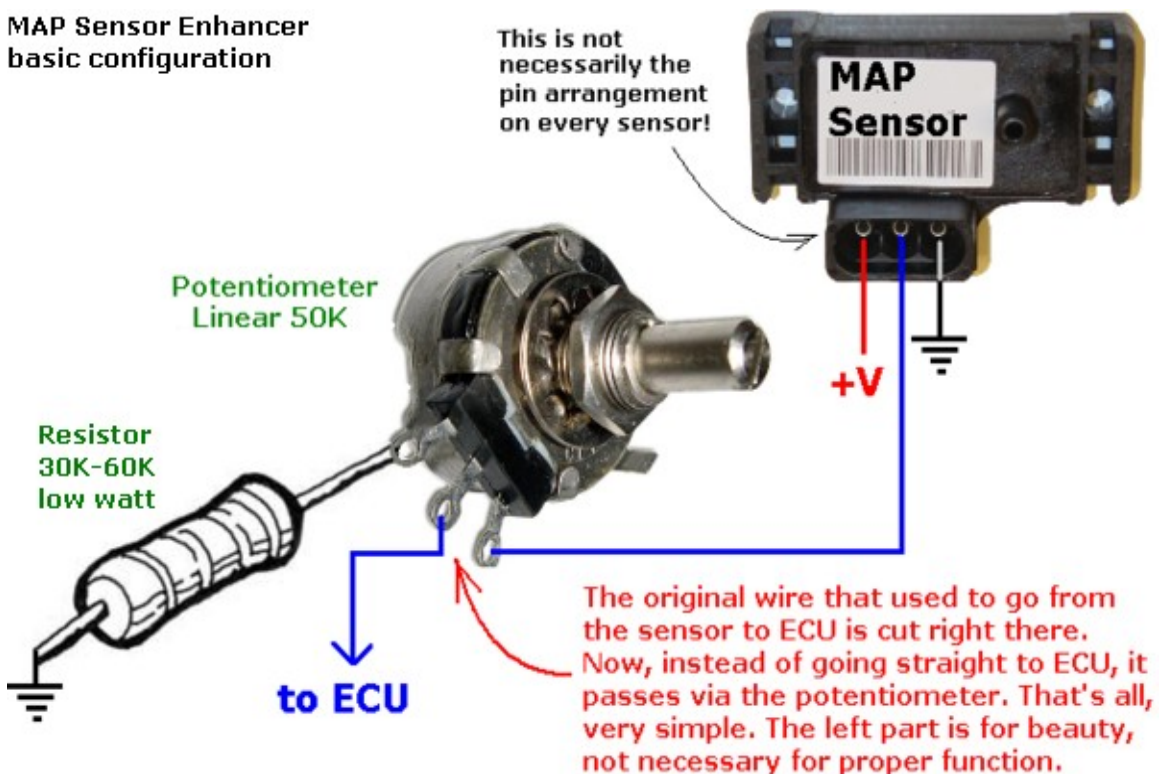
MAP SENSOR ENHANCER

The diagram below shows a typical installation of a MAP Sensor Enhancer. It will be exactly the same if there are two potentiometers – you would (1) identify the line coming out of your Map Sensor (the sensor is usually on the firewall or on the intake manifold), cut the signal wire and then (2) the device would simply be connected BETWEEN THE SENSOR AND THE ECU (computer) as shown below.

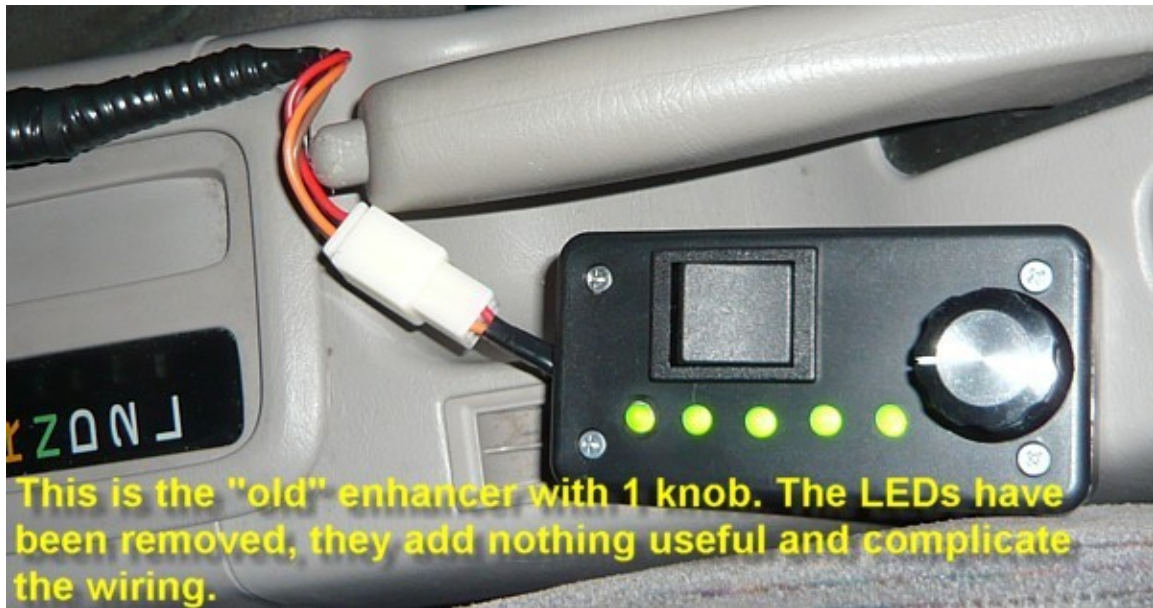
The device also connects to ground, any ground available or the sensor's ground. If you follow the color code we've been using, then ground wire is **BLACK**, the line from the sensor is **BROWN** and the line going out to the ECU is **RED**.

If you have a hard time locating the wires DO NOT DO ANYTHING! **Stop right there and leave this job to a mechanic.** Guesswork won't serve you right this time. One wrong connection may burn the computer and you'll be wasting hundreds of dollars on repairs. This is a very simple connection but must be done with confidence.

MAP Sensor Enhancer basic configuration



To enable a more comfortable use of the MAP Sensor Enhancer, I extended these 3 wires all the way to the driver's seat and positioned the enhancer next to the hand brake, as shown in the photo below. The white plug makes it easy to disconnect the unit for repair or upgrades. And when the enhancer is disconnected you can connect a short wire between the brown and red wires, thus restoring the original direct connection between the MAP sensor and the ECU.



MAF SENSOR ENHANCER

This is a tricky job and should be done only if no MAP sensor is available in your vehicle (usually Ford I think). Now this is a tricky job and you should follow the instructions in the chapter MAF SENSOR ENHANCER in the "GST book" (Gas Saving Technique, see def.)

There are two ways suggested and illustrated in that chapter:

1. Using the MAP Sensor Enhancer, electronically.
2. Instead of electronics, adding an air breather bypass to the MAF Sensor airflow, to change its reading mechanically with a cable going to the dashboard.

OXYGEN SENSOR ENHANCER

To install an Oxygen Sensor Enhancer, follow the installation instructions that come with EFIE if you got the enhancer from Eagle Research.

If you made it yourself from the plans given in document "D17", follow the tuning and installation instructions in that document.

"D17" or actually D17.PDF, is number 17 in Patrick Kelly's free energy collection of patents and plans. It's title is "Dealing With The Vehicle Computer".

It is available on the Internet: search Google for "Dealing With The Vehicle Computer" including the quote marks.

I built one but decided not to mass produce it. If you want to build one but cannot find the document, please email me. Bill Lang found that in China they would make it for you for \$3 apiece if only you'd order 1000 pieces. So if \$3,000 sounds like a good business investment, go for it. It's definitely in very high demand, and rising!



INSTALLING AND USING THE CHARGED WATER SYSTEM

ANNOUNCING THE 72% BREAKTHROUGH

At the time I wrote this chapter, mid 2007, gasoline prices here in Los Angeles have gone totally mad, some stations went beyond \$4.60 a gallon! But at the same Bill Lang stumbled upon a technological breakthrough that got him **72% improvement in gas economy on an unmodified Saturn 1994.**

By "stumbled" I don't mean that it just appeared - he went through a lot of trial and error, but eventually the system he came up with was surprisingly simple. Extremely simple when you compare it to anything else that is out there AND WORKABLE. The official name of this system is **WATERGAS GREEN MACHINE** but for simplicity we sometimes call it the "charged water" system.

This system has great advantages:

- It is simple to make at home with hardly any tools at all,
- For an investment of under \$2 and some stuff usually found around the home, it is EXTREMELY AFFORDABLE for any poor country in the world to duplicate,
- What's more, after several months of collecting feedbacks, it seems to be most beneficial for older cars 1995 and older - again making it most helpful for developing countries.
- It doesn't work on all cars, but when it does - it performs unbelievable magics of up to 72-73% better gas economy, and better than 50% on the average. No other system in the world does that. Not since they screwed up the gasoline and car designs so we wouldn't be able to use 300 MPG carburetors.

[CLICK HERE](#) to listen to [Bill Lang's interview on BlogTalkRadio.com](#) telling the amazing story of how he got to discover this breakthrough. If you're reading this from paper, the link is http://boss.streamos.com/download/blogtalkradio/show_23286.mp3

The procedure I'm going to give you in a moment is very cheap and simple but **has to be followed exactly**, because if you change major factors you may throw the formula off balance. AFTER you have some results, any results at all, you may **then** change - ONE FACTOR AT A TIME - and compare the results to previous ones.

The system under the hood consists of what we call "Vaporizer", or the "World War 2 System" that Bill Lang mentioned on the radio show. It consists of a sealed 1 quart glass jar (for low cost and visibility) that bubbles a little air through treated water (charged water), using engine vacuum. Below you will be able to learn about the preparation of such charged water, and how it all works.



A WORD ABOUT "SCIENCE" VS. "MAGIC"

This system is a down-to-earth, **workable simplification** of the famous "WW2 system" that cooled down airplane engines, saved fuel and saved on maintenance. The first B52's needed water injection just to get off the ground! Water is also well-known for its capacity to boost engine power AND decrease emissions considerably.

Its power comes to us not from sophisticated science labs and long calculations by supercomputers, but from the "magical" results of trial-and-error! The power of simplicity is at your service here: Bill and Tom Lang have done many years of trial-and-error so YOU don't have to!



But what is "science" after all? Is it the big words that nobody understands? If you ask me that's not at all what it means. I think "science" means: WHAT WORKS? WHAT DOESN'T WORK?

Let me put it in more blunt words: Results talks, and BS walks.

So please don't ask me (as I have already been asked) about the atomic structure(s) of the water we're processing or "charging" here. Or why the heck, on a sub-molecular level, this process works its "magic". All we know and care about is this:

1. IT WORKS!

2. THE WORLD MUST KNOW ABOUT IT!

SYSTEM OVERVIEW

Many people have confused the technology of THIS chapter with previous technologies, devices, methods and documents. Let's go over the basics to set things straight.

This new technology of **CHARGING WATER AT HOME AND TAKING IT TO THE CAR** is not only experimental, it is **unique**. It stands by itself! Don't bring any previous ideas when you study this chapter. Phleeeeee. This chapter says what it means and there are no assumptions left to imagination.

THIS IS A STAND ALONE CHAPTER. DO NOT CONFUSE IT WITH ANYTHING ELSE. IT IS A SYSTEM BY ITSELF. THE FACT THAT WE USE THE ELECTROLYZER OR ANYTHING ELSE DOES NOT MEAN THAT IT HAS ANY CONNECTION. LET ME REPEAT THIS: IT IS A SYSTEM BY ITSELF.

I'm not trying to nag you for nothing. It has already happened that people got confused and asked me odd questions. I know this is all new, yet I'm asking you to do your best to differentiate, and I'll do my best to make this as clear to you as possible.

So here are the basics of the charged water system:

- There are two worlds, the home - and the car. Each world with its own hardware and techniques. **Only WATER travels from the home - after certain preparation - to the car.**
- In the car there is a vaporizer. It's shown in the photo – an extremely simple device that creates water vapor by bubbling engine vacuum through tap water. There is nothing hidden in the photo. It looks very simple and it is indeed very simple.
- At home there is an air-tight Electrolyzer (a simple machine to separate water into Hydrogen and Oxygen), and an open jar or bowl with tap water. You will learn below how to make it all come to life. I'm not giving you the procedure yet, just general overview for your orientation.
- The process - STILL AT HOME - you “charge” some tap water, the water in the open jar, by flowing Hydrogen and Oxygen through it. Got that? You charge the water with HHO. The gas goes through the water, goes up and away into the room, and some kind of unknown “charge” or chemical property stays in the water.



There must be someone on this planet that would be able to look at this and say: “Aha! Of course! You're doing blah-blah-blah!” Unfortunately for this chapter, that person is not myself. Not the developers either. We call it

"charging" water and that's it. After all, who cares? If it saves gasoline it's wonderful even if we don't understand it. And if it doesn't save, who cares if it has big scientific explanations? It would be junk despite the "science".

- So in the next step, after you have this charged water, you take the WATER, not anything else, just the water, TO THE CAR. Again, I want to stress that THIS chapter MEANS WHAT IT SAYS. When it says "you take the water", it does not mean "the water and the bowl". It means THE WATER. Of course you take it in some vessel. But if there was a device or something needed, I'd say so. Again, **only water travels from the home to the car.**
- In the car you pour this charged water into a vaporizer that has been installed beforehand. There is nothing else in the car but a vaporizer as you've seen in the photo above. Again, this is not the instructions yet. You'll learn how to make and install the vaporizer.
- You drive around with that vaporizer filled with CHARGED WATER. For some reason or other it makes the engine save gasoline while boosting its performance.
- This water stays charged for several weeks days (some say 6 months but I haven't verified this yet). You just observe water level in the car and when it goes down to about $\frac{1}{4}$, you make a fresh amount of charged water and fill it up.
- That's the simplicity of it. Now let's look at the details.

SUPPLIES YOU WILL NEED

Some kits contain the major components of this system, those that are harder to find. You may need to get the pump and adapter/charger locally since those supplied may not fit your local voltage rating. If you're buying a charged water system, check with the seller exactly what you're getting.

The components for the **typical CHARGED WATER SYSTEM** are listed below:

- 1 Electrolyzer (see relevant chapter for replication). NOTE: this could be a lesser durability or smaller Electrolyzer, because it's going to work only $\frac{1}{2}$ hour at a time, and also is not intended for automotive installation. This will become clearer with the usage procedure described below.
- 1 Vaporizer (see relevant chapter for replication).
- 2 pieces of $\frac{1}{4}$ " vinyl tubing, 15" long each.
- PURE baking soda.

- 1 Aquarium pump - the smallest and cheapest you can put your hands on will do just fine. An old and dirty one will do just find. Or get one from Walmart or your local pet supply store.
- 1 Power adapter that can supply a DC (direct current) voltage of 4.5-6 volts. An old cellphone charger will probably work. You can get one of those in a second hand store or even some dollar stores. Usually there's one or two laying around in the home.
- 1 open jar or bowl of about 1 quart (roughly 1 liters). Could be bigger. Could even be a large bottle if you can't find a jar. No lid necessary!

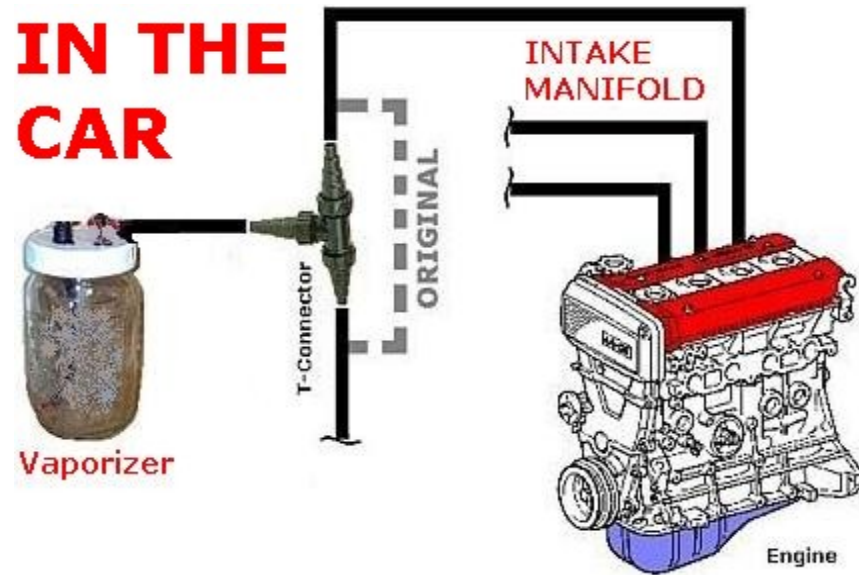
PREPARING THE CAR

As I said, in the car you must first of all install a vaporizer. If you don't have a vaporizer, read the chapter on replicating the Vaporizer. If you already have – don't confuse here please – only IF you already have an Electrolyzer in the car - you can turn it into a vaporizer by taking out the fuse. (No 12 volts = it's working in what we call "H2O mode", or in other words it's working as a vaporizer. No electricity, no hydrogen generated.)

Installing int the car is very simple. As you can see in other parts of this book, there are separate chapters for installation, maintenance, etc. But the charged water system is so unique, that I'd rather keep it all in one self-contained chapter. Here's what you do in the car (refer to the diagram below):

1. Connect the vaporizer to any of the lines from the intake manifold, such as the PCV valve (optionally spliced to the air filter as well, call or email if this is not clear). If you want to use your **Water4Gas** Electrolyzer for this purpose, it must be operated in "H2O mode" (i.e., no 12 Volts). The connection in the car is very simple as shown in the diagram below, and shouldn't take longer than 2-3 minutes.

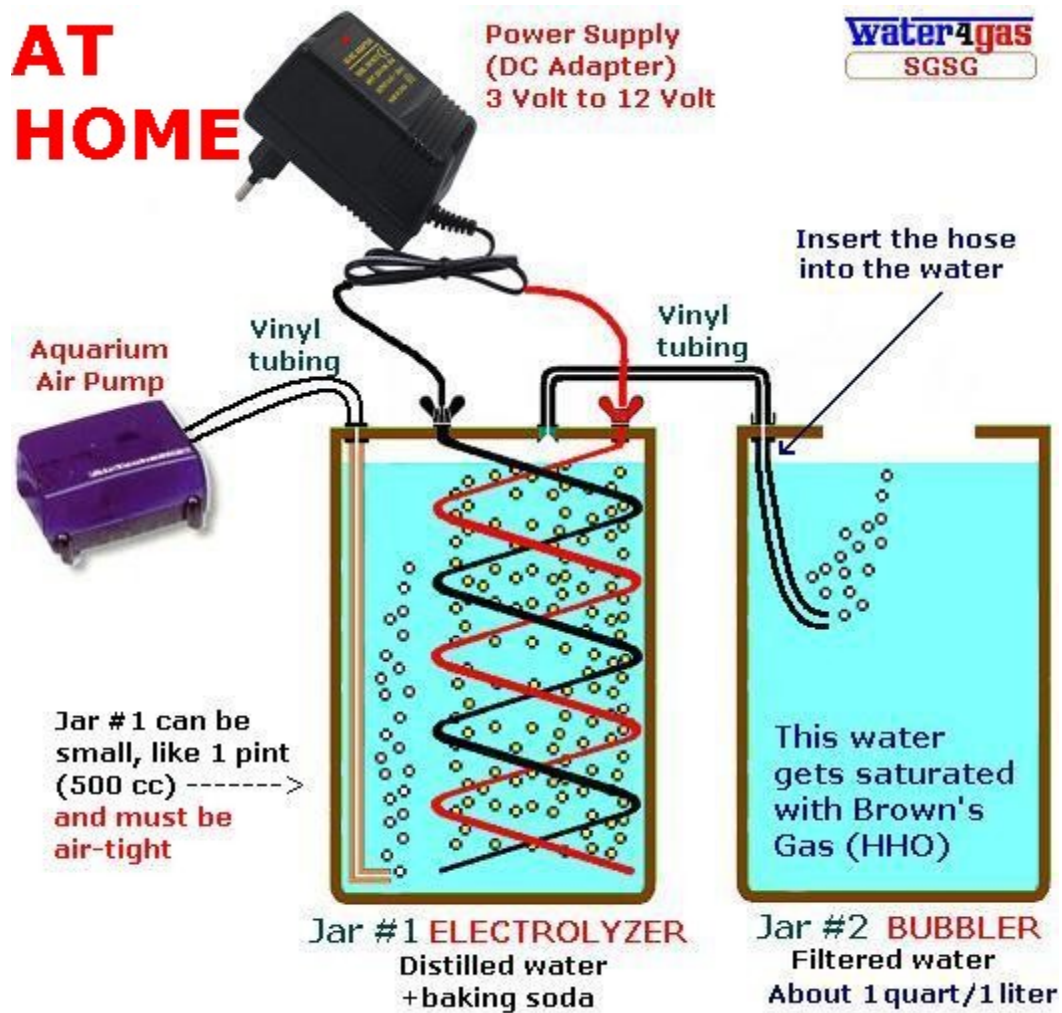
2. The vaporizer can be located almost anywhere that's not burning hot. Support it with bungee cords, foam or cable ties.



CHARGING THE WATER

The diagram below shows an overview of the system at home. The abbreviation SGSG you see at the upper right corner stands for Simplest Gas Saver in the Galaxy. Well it is...

For clarity of the process, we'll call these jars as they are marked here – Jar #1 is the Electrolyzer, and Jar #2 is the open top jar or bowl.

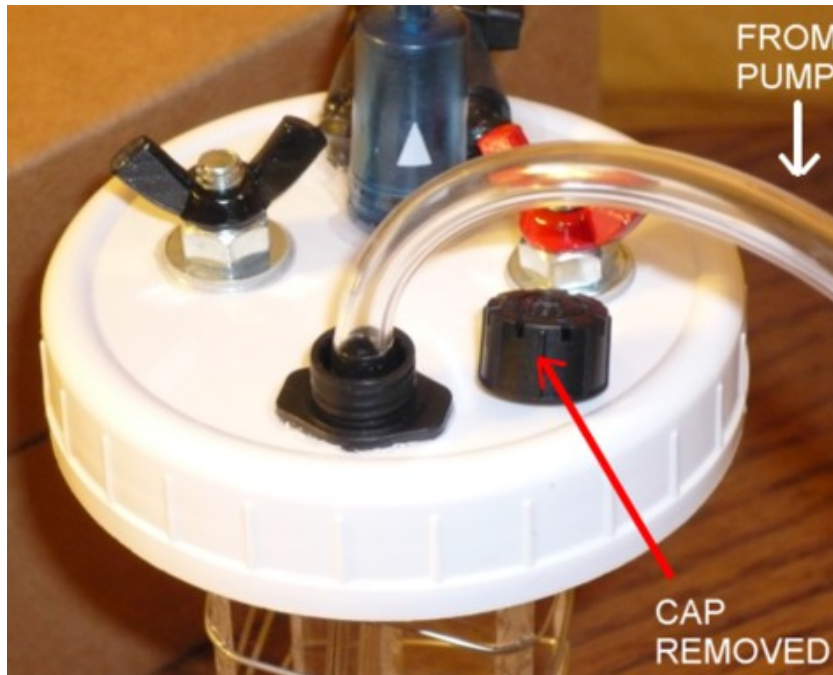


1. In your kitchen or garage, prepare an open top jar or large bottle where you want the "charged water" to be – that's **Jar #2**. LEAVE THIS JAR OPEN – NO LID OR COVER.
2. Fill up jar #2 with TAP WATER or filtered water.

3. Now set up your Electrolyzer as **jar #1**, also in the kitchen/garage. CAUTION – KEEP AWAY FROM OPEN FLAMES, SPARKS AND CHILDREN because you're going to generate some combustible gas.
4. Fill **jar #1** half way with DISTILLED water (1 pint or 450 cc).



5. Remove the bubbler cap (only the loose cap, not the whole thing, as shown in the photo below. Keep it in a safe place). Connect a thin vinyl tubing ($\frac{1}{4}$ " diameter, about 15" long) to the air inlet of **jar #1**, the one that leads to the bottom of the Electrolyzer. See photo below for clarification:



6. Connect a small aquarium pump to the tubing you've just added, using 1/4" vinyl tubing. Don't plug it in the wall outlet yet.
7. Connect a 1/4" vinyl tubing to one of the HHO outputs of Jar #1, long enough to reach jar #2. Its end must be able to submerge in the water of the jar #2.
8. The Electrolyzer must be air tight. Seal any output of the Electrolyzer (jar #1) that may allow the gas to leak into the open air. In our Electrolyzer it would be the safety valve (check valve, shown in blue in the photo below), and the second HHO output; seal each one with a little rubber cap or a piece of insulation tape. **You can kill two birds with one stone by plugging them into each other!** Just add a small piece of vinyl tubing to adapt the diameters and get an air tight connection. See photo below:



9. Connect the Electrolyzer to a cellphone charger or similar, that puts out about 4-6 volts. Don't plug it in the wall outlet yet.
10. Add 1/8 teaspoon of PURE Baking Soda into the Electrolyzer. **Don't use anything but pure Baking Soda!** The idea of the quantity is to create a current just enough to draw the maximal current of the cellphone charger, no more so we don't burn it. If you have a digital voltmeter you can play with that. Otherwise use 1/8 teaspoon for starters.

If you're not sure how much is 1/8 teaspoon exactly, do the following: put 1 flat teaspoon of Baking Soda in 2 glasses of water, mix it well together and pour 1 quarter of 1 glass into the Electrolyzer when it's empty, then fill up more filtered water till it's **half** full.

There is nothing holy about these numbers, I am only trying to pre-estimate what should work for you. But experimenting for yourself is the best way to go, using my numbers as your starting point.
11. Check your setup, then plug the cellphone charger into a wall outlet and observe the setup again. The Electrolyzer should be producing HHO (you'll see tiny bubbles forming around the electrode wires).
12. Plug the aquarium pump and observe the bubbles coming out of the tubing, at the bottom of Jar #1. Assuming that your setup is right and the Electrolyzer is indeed air tight, this will push the invisible HHO out of the Electrolyzer and into jar #2. You will see bubbling coming out at the tubing in

the open jar. Those bubbles are air **with HHO**.

13. Make sure the cellphone charger does not overheat. If it feels REALLY hot after a few minutes, unplug it and reduce the amount of Baking Soda in jar #1. You don't have to throw away the water, just dilute it with distilled water and then pour some out to reduce it back again to about half jarful.
14. That's all for the preparation. Now you're charging the water in the **jar #2**. Let it do its thing for 45-60 minutes.
15. Now unplug the electricity from the charger and pump.
16. Immediately add 4 capfulls of **3% Hydrogen Peroxide** into the second jar. The kind you buy cheaply at RiteAid or the 99-Cent store.

Again, the amount is **FOUR CAPS measured with the Hydrogen Peroxide bottle**.

17. The water is ready to be taken to the car.

**USE THIS CAP
FOR MEASURING**



BACK TO THE CAR!

1. The resulting liquid would look like plain water without any added color or bubbles. Yet it will be charged with special qualities that are, at the time of writing, beyond my limited understanding of chemistry. Pour this liquid into the Vaporizer **in the car**, leaving **2" of air on top** (above the water).
2. Start the engine. Close the bubbler cap all the way down (clockwise), then open one click for VERY low bubbling (you may need to open a bit more if the vacuum is weak). You should be able to count the bubbles coming out. **Adding extra bubbles, by opening the valve more, may produce more power but not mileage!**
3. Test drive, day after day. Bill Lang and other drivers report that the treated water has continued to be effective for several days without any loss in performance! Enjoy a powerful, smooth and happy drive!

SYSTEM MAINTENANCE

SEVERE WARNING

Before attempting **ANY** maintenance on this system, turn the engine OFF and make sure that the device(s) are DISCONNECTED from the 12 Volt supply, by turning the ignition key fully off AND pulling the in-line fuse out. Do this even when "only" filling out water – otherwise the electrodes might short circuit to the car's body or another system, possibly causing damage or fire hazard.

PERIODIC MAINTENANCE

Check the jar once a week or so, to get a feel for how quickly the water is used up. Depending on your driving and engine, the water may last for two months or more. Visually inspect the system for leaks, cracks, loose wires or anything unusual.

The HHO **Water4Gas** device needs very little maintenance, basically just water/Electrolyte refill and cleaning. The H₂O **Water4Gas** device needs even less maintenance since the water keeps cleaner and will be consumed in a slower rate. And there's no fuse to blow or wiring problems.

Since this product is made exclusively from components, which are locally available throughout North America, you may maintain this device yourself using local parts. The mason jar is very durable, possibly the strongest part in the entire system. If broken, visit your grocery or local OSH store and get a new jar. Ask for the Wide Mouth Canning Jars or "Wide Mouth Mason Jars". In California we get them for 87 cents at OSH.

If any of the parts other parts become loose it is safe to glue it back with hot glue (parts no submerged in water). Goop Marine or Goop Plumber for submerged parts such as electrodes (\$4.99 at <http://ACEHotline.com>, at Ace Hardware stores or other hardware/marine stores). Before gluing, make sure the device is dry and that the fuse is pulled out (for maximum safety remove the device for a day and block the open vacuum hose end. **Let the glue harden thoroughly per the manufacturer's instructions (48-72 hours) before using the device. Do not add water before the glue is fully cured (24 hours).**



According to www.glassattic.com/polymer/glues-Diluent.htm there is NO difference between Household Goop, Automotive Goop and Plumbing Goop, they are all the same formula with different tube colors. I'm not a chemist

RECOMMENDED TOOLS

Here's a list of tools you may want to have. Especially if you intend more than one installation of **Water4Gas** devices, they're good to have because it will save you a lot of time and the results will look neat and professional.

If the price of professional tools is an issue, as it was in my case, the thing to do is get the best offers out of Harbor Freight Tools. They not only have excellent prices in general, but you can also sign up (free of any charge or obligation) to become a "Preferred Customer" and get further discounts and great offer every week.

Their national phone number is 843-676-2603. Visit www.harborfreight.com or phone to locate a local store. You can also buy off the website, pay low S&H and save time. Look at these great offers that will definitely make your life easier for **Water4Gas** installations, maintenance and further development:

NOTE: The tools below are offered for the professional installer, and are NOT NECESSARY for a single installation.

VACUUM TESTER



This tool is very useful for locating the best vacuum point for any Water4Gas system. It should read around 50 on the outer dial (the green area) for best results.

- Diagnose fuel pump output and engine vacuum. Easy to read 4" diameter gauge.
- Tests output pressure to 10 PSI
- Read vacuum to 28" HG
- Check mechanical or electric pumps
- Brass fittings
- Adapters to work with most vehicles
- Comes with 24" long 1/4" diameter vacuum hose, blow mold case

ITEM 93547-2VGA, was \$12.99 **only \$9.99** at the time of writing

If you like building stuff yourself, an **accurate** vacuum gage can be constructed at home for about \$3.

Free plans: www.bagpipejourney.com/articles/manometer.shtml

All you need is a piece of board and 20' clear vinyl tubing from Home Depot (bar code 48643025493, \$2.69)

10" RATCHETING TERMINAL CRIMPER



- Ratcheting mechanism for uniform crimps every time
- Color coded head for different wire sizes
- Great for crimping insulated terminals
- Super high-quality carbon steel construction with hardened and tempered jaws
- Wire size capacity: 22-18 AWG/DIN 0.5-1.0 mm (red), 16-14 AWG/DIN, 1.5-2.5 mm (blue), 12-10 AWG/DIN 4 to 6 mm
- Tool length: 8-1/2", Tool weight: 1 lb.

ITEM 93977-2VGA. Was \$14.99 **only \$9.99** at the time of writing

7 FUNCTION MULTI-TESTER



Get accurate readings for DC voltage, DC current, AC voltage, resistance, transistor test, diode test, and battery test. Easy-to-read 3-1/2 digit LCD readout, positive set selector switch, and 32" leads.

- Automatic zero adjust
- Over-range indicator
- 2.5x second sample time
- Low battery indicator
- Fuse and diode protected circuit
- DC-A: 0-200 μ A-2000 μ A-20mA-200mA ; Resistance:
0-200-2000-20K-200K-2000K ohm; DC-V:
0-200mV-2000mV-20V-200V-1000V ; AC-V: 0-200-750V

ITEM 90899-1VGA, was ~~\$9.99~~ only **\$2.99** at the time of writing

NON-CONTACT POCKET THERMOMETER



Use this tool to locate the coolest available place in the engine area.

- Quickly locate hot spots in duct work, electrical panels and automotive systems
- Small enough to fit in your pocket
- Readings in Fahrenheit (-27 to 230 degrees) or Celsius (-33 to 110 degrees)
- Instant readings, response times under one second
- Includes real-time clock and stopwatch.

40 hour battery life, uses one CR2032 lithium battery; Emissivity is @ 0.95 fixed.

ITEM 93983-2VGA, was \$19.99 **only \$6.99** at the time of writing.

This tool is also sold on eBay for about \$20.

6-PIECE HEAVY DUTY PLIERS SET



Drop forged from rugged alloy steel, precision machined, heat-treated, & highly polished for long life. Insulating rubber handles for a comfortable grip. Buy now and save! Lifetime Warranty.

- 6" all-purpose diagonal cutters
- 7" heavy duty diagonal cutters with tapered jaws
- 8" needle nose pliers features extra strong grip
- 8" lineman's pliers has hardened cutting edges and jaw separation
- 10" slip joint pliers includes a shear wire cutter
- 10" groove joint pliers

ITEM 532-0VGA, was \$19.99 only **\$8.99** at the time of writing

120 PC AUTOMOTIVE FUSE SET, BLADE TYPE

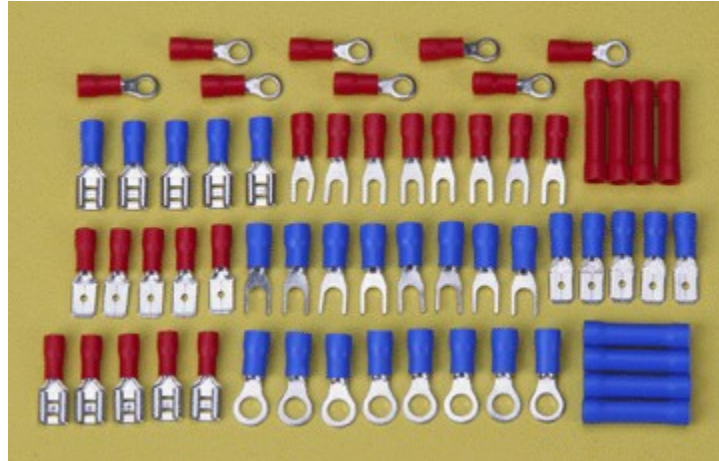


- A complete assortment of blade-style auto fuses in the six most commonly used ranges
- Fuse are color-coded and marked for amp rating--5 amp: orange; 10 amp: red; 15 amp: blue; 20 amp: yellow; 25 amp: clear; 30 amp: green
- Fast acting to prevent damage to wiring

ITEM 92940-2VGA, **\$9.99**

Note: AutoZone, PepBoys, DelCity.com and others carry other fuse sets and automotive fuse holders that are reasonably priced.

60 PC TERMINAL KIT SET



- Ten spade terminals (5 blue, 5 red)
- Ten female quick disconnect terminals (5 blue, 5 red)
- Sixteen fork terminals (8 blue, 8 red)
- Sixteen ring terminals (8 blue, 8 red)
- Eight butt connectors (4 blue, 4 red)

ITEM 94243-0VGA, **\$4.99**

I have these tools and I use them daily – they are good! You can have them too. And frankly, for a total sum of only \$46.94, why not be the best, most professional and most prepared **Water4Gas** installer you can be?

If you need a spacious tool chest for all these tools, and for a unit or two for demonstrations and on-the-spot sale, add the tool box on the next page. For an unbeatable price of \$6.99, you'll have everything you need in one very large place – 24 x 8 x 6 inches!

Recommended: fill out an application to become a "Preferred Customer" at Harbor Freight AND GIVE THEM YOUR EMAIL - you'll be receiving weekly offers with irresistible prices.

Again, their contact info is: phone 843-676-2603, and the website is www.HarborFreight.com

For the West LA and SF Valley areas, the store we use is located at 22912 Victory Blvd., Woodland Hills, CA

24" WATER-RESISTANT TOOL BAG



- Heavy duty water-repellent canvas keeps your tools dry and rust-free.
- PVC liner for extra water protection
- Rigid bottom with plastic feet
- Comfortable rope-reinforced nylon handles
- Metal zipper
- Overall dimensions: 24" L x 8" W x 6" H

ITEM 93596-1VGA. Was \$9.99 **only \$6.99** at the time of writing

14.4V 3/8" DRILL/DRIVER KIT

You don't need this tool for installations. In fact you can do without it altogether. However I want to recommend it warmly that you get yourself one of these – LOOK AND FIND IT AT THE LOW PRICE BELOW – because it will make your work so much easier on replicating the Electrolyzer and the MAP Sensor Enhancer.



- 550 RPM
- Reversible
- 20 Torque clutch settings
- 3/8" keyless chuck
- Convenient bit holder
- Double injection housing with nonslip grip
- Overall dimensions: 9-1/4"L X 3-3/16"W X 9-3/8"H
- 120V/60 HZ Charger
- 3-5 hours charging time
- UL listed charger

ITEM 95094-0VGA. Usually \$19.99 which is an excellent price, yet I got one for only **\$12** or so by using one of Harbor Freight's coupons.

GLUES

HOT GLUE

A glue gun is very useful for small repairs. A 60 watts "MEDIUM GLUE GUN" can be obtained from Harbor Freight Tools. The one shown is item # 40833-4VGA, measures 7.5" x 6.25" and costs **\$3.99** at the time of writing.

Sometimes the 99-Cent-Only Stores carry small glue guns and glue for (duh!) 99¢ each. Personally I prefer the small gun. It takes only 10 watt, does the job right and doesn't put too much glue, and less fumes.

Glue sticks may be obtained from almost any hardware store, sometimes the 99-Cent-Only Stores or craft/hobby shops such as **Michaels**.

Hint: when you place the gun unused, pull the glue stick a bit backwards. This prevents hot glue from spilling through the tip. **Exercise caution when working with hot glue** – don't touch the hot tip AND DON'T TOUCH THE GLUE UNTIL IT HAS COOLED OFF! (it will stick to your fingers and might cause light burns).



I USE GOOP GLUE

Glue for submerged components: The most economical **Marine Goop** is the **10oz Cartridge** (see photo), sells for \$7.95 at www.westerncanoeekayak.com or try at marine supply shops. For small repairs you can use 1oz Goop, \$3.29 from www.usahardware.com



I buy the 3.7 oz **Plumber Goop** or **Household Goop** at ACE Hardware, **\$4.99** or **\$3.98** at Home Depot. As mentioned above they are believed to be the very same formula; if you ask me buy the cheapest Goop you can find. **Automotive Goop** is also believed to be the same.

OTHER STRONG GLUES

An experimenter from Australia suggests: "**DynaGrip**" is the registered trademark of AFC International Pty Ltd (<http://www.afcinternational.com.au/site/adhesives.htm>). It can be used for just about anything and is cured in 1 hour and will withstand temperatures up to 260 degrees Celsius (500 Fahrenheit), can be used under water and is resistant to fuels, oils, etc.

DynaGrip can be found in Australia and possibly in NZ. It is American made but I haven't found the original manufacturer yet. Anyway this specific **Dynagrip** that he recommends is "**Quiksteel epoxy paste**", it is a two part paste, to mix equal parts together. The part number in Australia is **17002**. He comments: "It is brilliant, but have everything prepared as you have 10 min work time max."

In the USA the standard high temperature epoxy is **J-B Weld Epoxy**. Do not use J-B "Quik Weld" since it has a lower temperature rating. The part number is 8265-S and it can be found in almost any American hardware store. It is extremely strong and will survive high temperature up to 500 Fahrenheit.

ACCESSORIES: WATER AND ELECTROLYTE



ELECTROLYTE: Use Pure Baking Soda. Chemically it's not the best substance for the job. But the "good" alternatives - Sodium Hydroxide (Caustic Soda) or Potassium Hydroxide - are actually bad - they are terribly hazardous, while Baking Soda is safe enough to eat... The photo above shows a huge 12 lb bag I got for under \$6 at Costco (call 1-800-774-2678 or check www.costco.com for local store locations).

WATER: To be prepared for service, I also keep a large bottle of distilled water in my trunk. In a big town there's always some grocery around, but out in the country it's always better to be prepared with water. In the US you'll usually find it for \$0.99 a gallon. What I do is I mark the bottle or jug "With BAKING SODA" and add 4 teaspoons of Baking Soda to the water, per gallon. This ratio will generate a good amount of HHO at about 3 Amps, but you can experiment with different ratios (HIGHER THAN 4 TEASPOONS PER GALLON NOT RECOMMENDED!)

So you may choose to have a certain amount of Electrolyte mixed in the water and ready for installation - or put soda and distilled water in the jar itself during installation.

NOTE: for refills, use distilled water without Baking Soda. That's because the water is being consumed by electrolysis, while the soda stays in the device. Adding a mixture of water+soda will create an imbalance and may result in device overheating and/or fuse blowout.

SYSTEM TROUBLESHOOTING

WATER LEVEL TOO LOW

Add water... If you're saying "Of course!" or "Duh!" then listen up – there are things you should know here that are not obvious to everybody. First of all for safety's sake, never do it with the electricity on. Turn the ignition switch fully off AND pull the fuse out. Second, never fill out new water into an empty HOT JAR. Let it cool first. Third, for convenience of weekly or bi-weekly refilling, prepare a gallon of distilled water with the proper amount of Electrolyte, so you can pour just the necessary amount every time without worrying about Electrolyte ratios (for 1 Gallon, 1 teaspoon of Electrolyte is good for moderate production of HHO, and 4 teaspoons per Gallon are good for high HHO production; read the sections regarding fuse selection).

JAR OVERHEATS

Lower the ratio of Electrolyte. At $\frac{1}{4}$ teaspoon, the unit will normally stay cold or lukewarm, and moderate amount of HHO will be produced. Full teaspoon may heat up the jar (while producing maximal HHO). Don't worry about the jar, we haven't seen any jar cracking due to heat. But the plastics and glue may be damaged, so you don't want overheating for long periods of time.

In H₂O mode (no 12 Volts) the unit do not heat up unless they're mounted next to a hot part of the engine. Which brings us to HHO units overheating with moderate levels of Baking Soda – find a cooler place in the engine compartment. If you have the choice select a position in front of the engine rather than behind it, because that's where much cooler air flows in.

NO HHO PRODUCTION

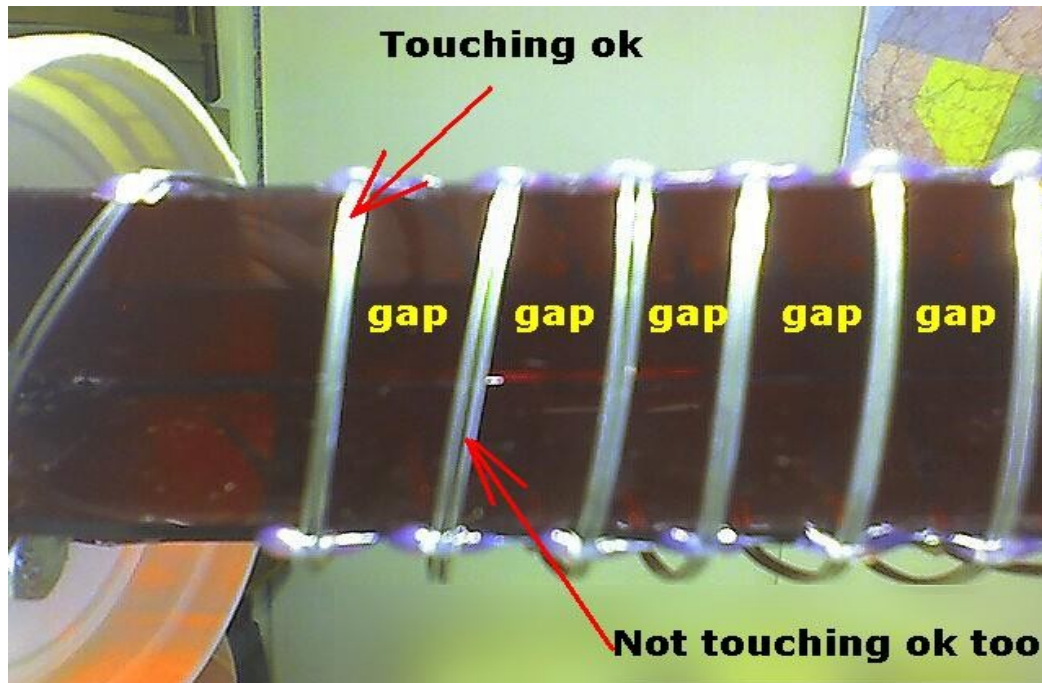
Check for a blown fuse. We have found the 5 Amps useful with $\frac{1}{4}$ teaspoon of Electrolyte for 1 quart of water. For high HHO production we use 1 teaspoon of Electrolyte to 1 quart of water, and replace the fuse to 8-10 Amps (although idling current measurement reads only 3 Amps).

If the fuse is OK, check the wiring. Measure the voltage between the terminals – it should read around 12 Volts. If you don't have a voltmeter, check with any 12-volt bulb.

Fuse keeps blowing? First check the wiring outside the device. Verify that nothing touches the body of the car or some other metallic or conductive element. Inspect the electrodes inside the device. I've been asked if they should be touching each other. Well yes and no.

Sometimes there are two wires in each electrode, sometimes only one. Each electrode, which is the wire, or pair of wires, coming out of negative or positive terminal (the bolt with the wingnut) and spiraling down, should be in one piece (i.e.,

not broken or visibly damaged) and spiraling at intervals of about 3/8" from the other electrode. The photograph below demonstrates what needs to touch or go very close together, and what not. If the electrodes are too close, separate them as shown and glue in place with Plumbers Goop.



As shown, touching wires or not in each pair is ok, as long as the gaps are kept between the electrodes.

IF YOU HAVE ONLY ONE WIRE (INSTEAD OF A PAIR) IN EACH ELECTRODE, THAT'S OK TOO.

BUBBLING TOO HIGH OR TOO LOW

Adjust the bubbler cap. A LOW BUBBLING is the ideal level. If it won't adjust, replace the malfunctioning component (adjuster, tubing or tip). Try to clean it first; it may be clogged with dust or mud.

HHO PRODUCTION TOO LOW

Try to replace the water. Maybe you or somebody else put distilled water and forgot the Electrolyte. For convenience of weekly or bi-weekly refilling, prepare a gallon of distilled water with the proper amount of Electrolyte, so you can pour just the necessary amount every time without worrying about Electrolyte ratios (for 1 Gallon, 1 teaspoon of Electrolyte is good for moderate production of HHO, and 4 teaspoons are good for high HHO production).

WATER LOOKS MUDDY IN HHO DEVICE

Don't worry too much about water clarity - it will never be perfect. If the water becomes very dirty in a few days, it may be due to tap water used in HHO unit rather than distilled water! Otherwise replace the water once every 2-4 weeks. You may wash the entire unit, including the jar and electrodes, with tap water. No need to use soap or chemicals for perfect cleanliness. We're not in a pharmacy, man, we're under the hood of a car!

MPG NOT AS EXPECTED

First check visually that the system functions mechanically without obstructions: bubbling level, loose connections, possible leaks or breaks, blocked or dented vacuum hose.

UPDATE July 2007: One major problem I have identified is that of clogged hoses and passages. Sometimes baking soda builds up in narrow passages such as the universal vacuum-T, the output check valve (mainly the one going to the intake manifold), and in some cases even the vacuum port going to the intake manifold (especially if it's inner diameter is very small). These clogs reduce mileage considerably since they impede the flow of HHO to the engine.

Blockage looks like a white stone. Yet it is VERY EASY to remove. Flush the clogged passage, valve or hose with tap water. No detergent necessary. DO NOT PUSH HIGH PRESSURE AIR through the check valve since this may bust the delicate membrane. Some water and a gentle mouth air blow will clean it in no time.

The secondary source of problem may be the computer, especially if it's a fuel-injected engine. With any H₂O or HHO unit installed, the car's computer may sense more oxygen in the exhaust pipe. It then considers the fuel mixture to be too lean - and adds more gasoline - unnecessarily.

Refer to the new book "**How You Can Push Your Gas Economy Through The Roof NOW**" for proven gas economy boosters and solutions. Let me give you an overview of what's in that book.

Now that you have a Hydrogen-On-Demand technology under the hood, you want to get the maximum benefits out of it. I have found that most of our clients and other people experimenting with this technology, are interested in one major thing: SAVING AT THE GAS PUMP. I bet you want the same thing.

Now having HHO added to gasoline, and saving at the pump, is not the same thing. I mean it doesn't automatically follow. There's a whole science in between, and I call this science GST or Gas Saving Technique(s) - a group of devices, techniques and methods which I find valid and seriously workable to save gasoline and reduce emissions.

So we will use the plural and singular versions of this new word. Each GST will work for you separately - but together all "GST's" will add up to a whole lot. GSTs, as a combined technology, is a perfect sister to **Water4Gas** Technology. You will agree with me after you've read this book. Or not.

I will number these babies – GST #1, GST #2, and so forth - so each "GST" will refer from now on to one single and distinct technique of squeezing more benefits out of each Dollar or Yen or Ruble. And let's see how much YOU can squeeze by using them.

I have decided to separate the GST technology in a book by its own, in which you will learn to push the envelope of gas economy as a sidekick, or in other words a complimentary knowledge to **Water4Gas** technology.

So lets re-define this technology: GST is a series of techniques you should use if you're seriously interested in saving gasoline by mainly - but not only - using water as a gasoline supplement.

Get that book (also known as the "GST Book") and start reading it today. You won't regret it.

WATER FREEZES IN EXTREME WEATHER

First of all, the glass jar will not break because the water has space to expand UPWARDS, with the air having 4 routes to escape (HHO outputs, safety check valve and bubbler valve) and to make more room for the expanding water. So just in case it does freeze, it will not break anything.

The electrolyzer is capable of thawing itself in a few minutes. Start the engine and let it run for a few minutes. The electricity running through the spiraled electrodes acts like a heater and will melt the frozen water. This is safe to do because this heating process happens all the time anyway.

The best substance to **PREVENT** freezing is using windshield washer fluid instead of water. It's mostly water and it cannot freeze. If you need to add some more fluid, you don't have to take the device apart. Just take off the bubbler cap, inject some fluid through the hole and put the cap back on.

OTHER QUESTIONS AND PROBLEMS

When in doubt – communicate! Now you're never alone! Call or email us via the website with any question or doubt - stating your name, **Order Number** and your specific question or concern.

TO EXPEDITE THE HANDLING OF YOUR REQUEST, PLEASE GIVE AS MANY DETAILS AS POSSIBLE ABOUT YOUR SYSTEM, VEHICLE, ETC. We have published several books about several systems, and when we get questions about "your system", it's hard to know what it's all about. Please pay attention to details so we can serve you better.

We'll get back to you as soon as we can, normally within 1-3 business days.

WIRE FAILURE IN THE ELECTROLYZER

This is caused by the constant touch of OXYGEN with the ANODE which is the "plus" wire. For some reason it does not happen at the same rate in all cars, and I suspect it's the quality of water and baking soda, as well as heat. However what you should do to prolong the life of the Anode is make it a thicker. And make sure it's made of **stainless steel grade 316L** – nothing else will survive for very long.

I'm using 0.032" which is pretty thin, however I twist two or three together, using a drill. That's in order to make it more durable AND gain better contact with the water.

You'd better twist at least that many wires (two or three) for the non-failing wire too (the Cathode). Let me explain why. As I said the only wire that fails is the Anode due to touching Oxygen constantly. The Cathode (minus) does not suffer because that's where the Hydrogen comes out and Hydrogen does not attack stainless steel. However we want a better contact THERE, to allow enough Hydrogen production **at the Cathode**.

Hope this is clear enough. Bottom line is: better double or triple the wire for both.

Only 316L stainless steel will be soft enough to twist triple 0.032" wires and still be able to handle it by hand, so you may choose to use 316L for both Anode and Cathode.

GET HELP

To get more help, feel free to email or phone via the website. I'm not publishing the contact info here in case we change email or phones. Always check the contact page for updated contact info.

REPLICATING THE ELECTROLYZER

PARTS LIST

Appendix "Replacement Parts" tells you all about the replacement parts necessary to fix the system, and exactly where to get them. You have online and offline options which will be significantly different according to:

1. Your physical distance from good hardware stores and craft stores,
2. The quantities you wish to manufacture.

Generally, allow me to assume that you will not be starting from large-scale manufacturing. You will probably choose to start from small quantities and grow as you go. Wise decision! If you ask me, this is the only healthy way. Ok, if so then you don't need to go online and get dirt-cheap high-volume prices. Just visit the local shops and buy small quantities as needed.

What you will need for the main unit:

Item	Quantity
Jar: "Wide Mouth Mason Jar"	1
Lid: "Ball 37000 wide mouth canning jar plastic storage caps"	1
Plexiglas 2.15" x 5.75" x 1/4"	2
Electrode wire - STAINLESS STEEL, grade 316L*	60"
Bolt 1/4"x7/8"	2
Washer 1/4", flat	2
Washer 1/4", split	2
Nut 1/4"	2 or 4
Wing Nut Coarse 1/4"	2
Barb coupling	2
Elbow Fitting	2
Adjustable Dropper (Bubbler) "DAB—Bubbler on 1/4" Barb"	1
Check Valve	1
Clear Vinyl Tubing 1/4" x 0.170" ID	6"
Vacuum Hose, "VAC HOSE 1/4 7/32 I.D."	12"
Ribbed Anchor 4-6 x 7/8	1

* You may use Stainless Steel grade 302 or grade 304 for the "Cathode" (the minus volt wire), but grade 316L is essential for the "Anode" (the plus volt wire). If you're going to use both in one device, it is important to always make note which is which. Also remember to put a RED wingnut on the bolt connected to the 316L wire, and a BLACK wingnut on the 302/304 wire.

The list above makes one energy-converting device. To complete the system you will need the following accessories:

- ✓ Vacuum Hose, "VAC HOSE 1/4 7/32 I.D.".....43" x2
- ✓ Vacuum Tee, Universal.....1
- ✓ Wire, Red 14-GA.....32"
- ✓ Wire, Black 14-GA.....32"
- ✓ Fuse Holder +fuse.....1
- ✓ Baking soda, approximately 10-month supply.....3.8 oz
- ✓ Butt Terminal 16-14 AWG.....2
- ✓ Spade Terminal 16-14 AWG, 1/4" or #10.....2
- ✓ Cable ties.

MANUFACTURING TOOLS

- ✓ Self-locking long-nose pliers, small
- ✓ Regular pliers, preferably thick long-nose 3"-4"
- ✓ Wire cutter
- ✓ Open wrench (or ring wrench), size 11 mm or whatever fits your bolts
- ✓ Electric drill
- ✓ drill bits: 1/4" and 7/32"
- ✓ Solder iron
- ✓ Caliper or accurate ruler
- ✓ Sanding paper, thin
- ✓ Terminal crimper
- ✓ Glue: Plumbing Goop and Super Glue (Crazy Glue).

MANUFACTURING PROCEDURE

WARNING: Some of the procedures offered below create toxic fumes, such as soldering or strong glues. Work in a well ventilated area and do not inhale these fumes!



Hey - I mean it - especially Goop has a very violent smell! What I use to prevent health hazards is this \$20.44 respiratory protection mask that I got from a local Airgas shop (welding supplies).

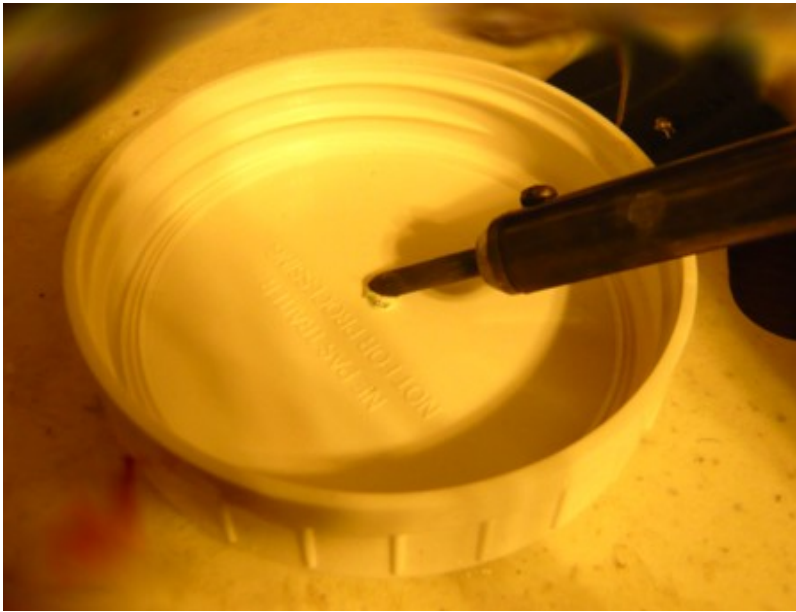
The one shown is a 6200 half-mask with a pair of 6001 cartridges (filters), made by 3M. You can find it online, and if you get a different model make sure it can handle toxic gases.

1. Get all the parts and supplies. The appendix on Replacement Parts has all the sources online/offline and estimated prices for USA.
2. Start with creating the lid of the jar. This is the basis upon which everything else will be build on. It has better be a plastic lid otherwise you're going to create an electrical shortcut that would burn the fuse every time.

(It is possible to use the original, metallic lid that comes with the jar. But the electrical problem mentioned above require several insulated washers and special attention. It's not worth the price of a plastic lid if you can get one for the jar you're using. In the USA and Canada quart-size jars are standard; in other countries use what's available or order American made "Bell" jars (also called Mason Jars) from www.Amazon.com).

Clean the plastic lid of any dust and especially the oily layer left by its manufacturing process. Use vodka for best results (less toxic than acetone or chemical alcohol).

3. If there's a little bump in the middle of the plastic lid (bottom side), flatten it using a solder iron. But be careful not to puncture the lid!

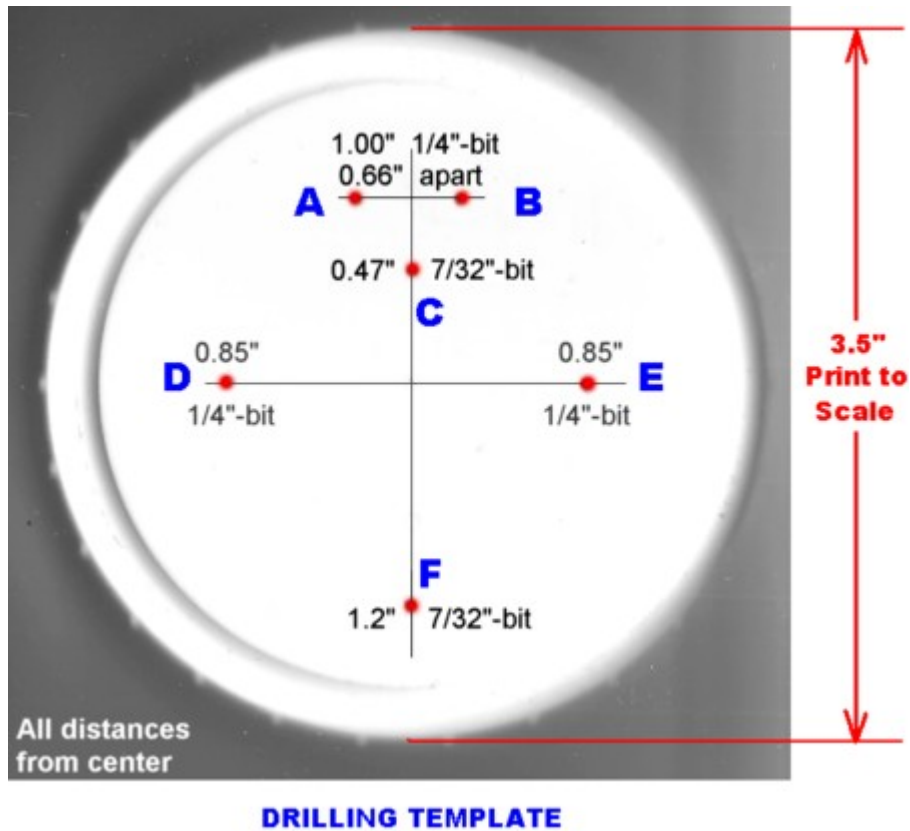


4. Mark and drill holes in the lid. Use the template below, printed to scale and drilled through. The measurements are not critical but try to be as close as possible to the template. Distances are based on functionality and ease of construction alike. Note that two different drill bits are required. In absence of a drill, make the holes using a solder iron.

WARNING: Using a solder iron or any other heating element on the plastic will definitely create toxic fumes. Work in a well ventilated area and do not inhale the fumes – place a fan behind you or sideways and let the fumes flow away from your face.

Refer to the diagram below for marking correct hole location:

- The upper two holes (A+B), 1/4" each, are for the elbows (HHO outputs).
- A bit lower on the center line (C), 7/32", is for the check valve hole.
- The two holes on the horizontal line (D+E), 1/4" each, for the terminal bolts.
- The lower single hole (F), 7/32", is for the air inlet (bubbler).

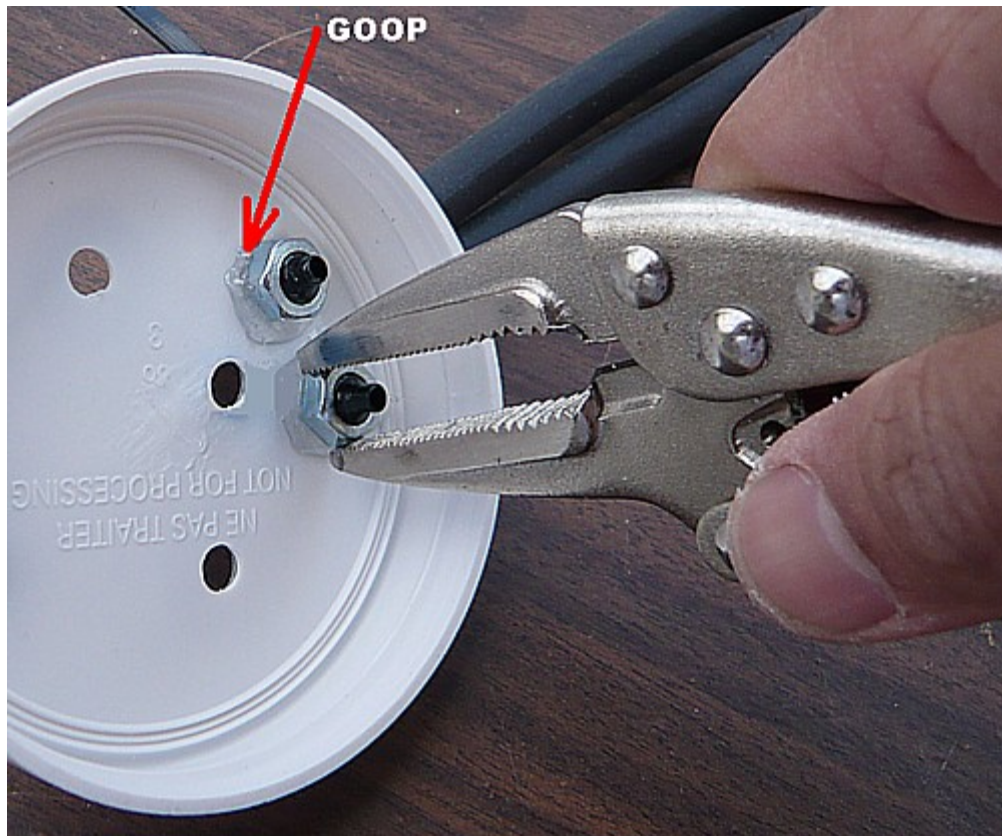


5. Clean the holes. Using thin sand paper roughen a small area around each hole, from the upper and lower sides, so the glue can later on stick better to the surfaces. I do this step with a piece of sanding paper glued to a cork driven by an electric drill, as shown in the photo below. The cork is held in the drill by a bamboo stick, which also serves as a guide:



6. Glue two flat washers onto the lid, upper side, using Super Glue. You can use Goop as well, but I chose Super Glue for its fast curing time and its thinness. If you prefer to work with Goop, use a THIN layer and let it cure WITH PRESSURE for 24 hours before proceeding.

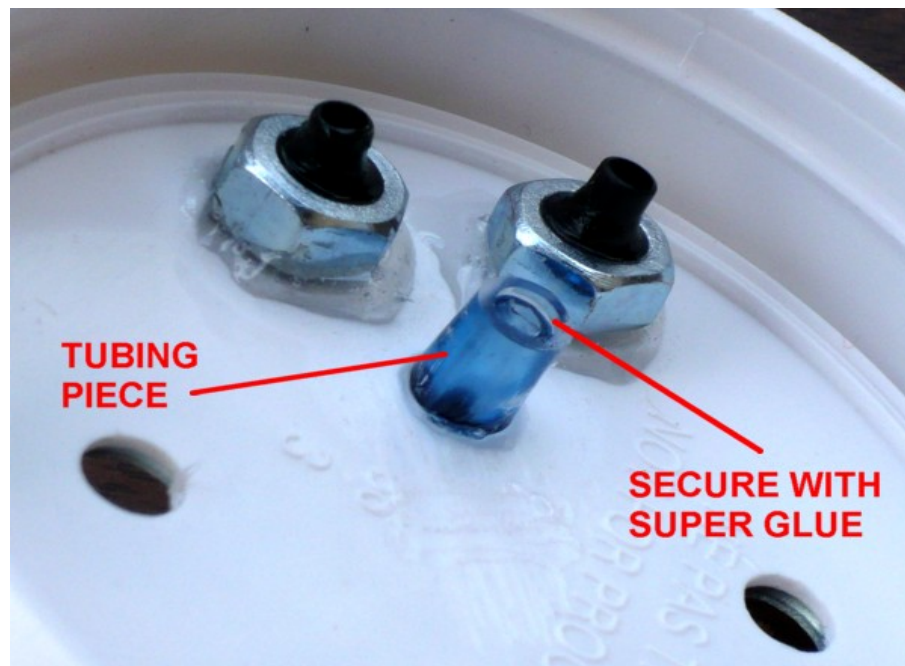
7. Insert and glue onto the 6" vacuum hose, using Goop, one barbed "elbow". At the other end insert one barbed coupling (without glue). Make two of these.
8. Using Plumbers Goop or J-B Weld (in Australia: DynaGrip QuikSteel Paste), insert and glue onto the lid, the HHO outputs (the two barb elbows with the two 6" vacuum hoses). Secure the bottom part of each elbows (under the lid) with 1/4" nut, screwed on using pliers and glued with Goop. It's quite tricky; in order to succeed you must grip the nut strongly using a small Vice Grip pliers (self-locking long-nose pliers works best here), while supporting the elbow with the other hand. Tie the hoses together using a cable tie (make sure not to over-tighten since that will block free gas flow).



9. Secure the nuts to the elbows with small bits of Crazy Glue, on the visible part of each nut's thread.

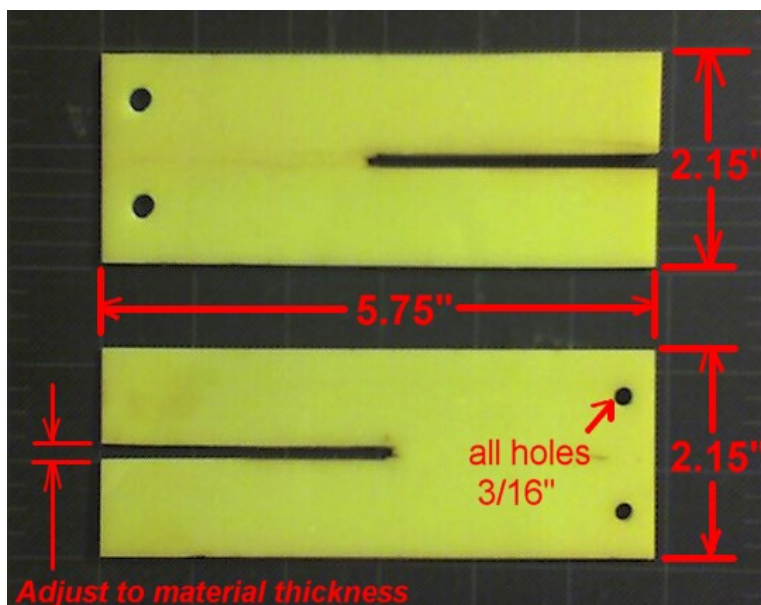


10. Using Plumbers Goop or J-B Weld (in Australia: DynaGrip QuikSteel Paste), insert and glue the check valve onto the lid. The check valve may be fastened (lower side of lid) with a self-locking nut or a small piece of tubing (0.17" inner diameter) glued with Crazy Glue (Super Glue). Do it quickly while the goop is still wet.

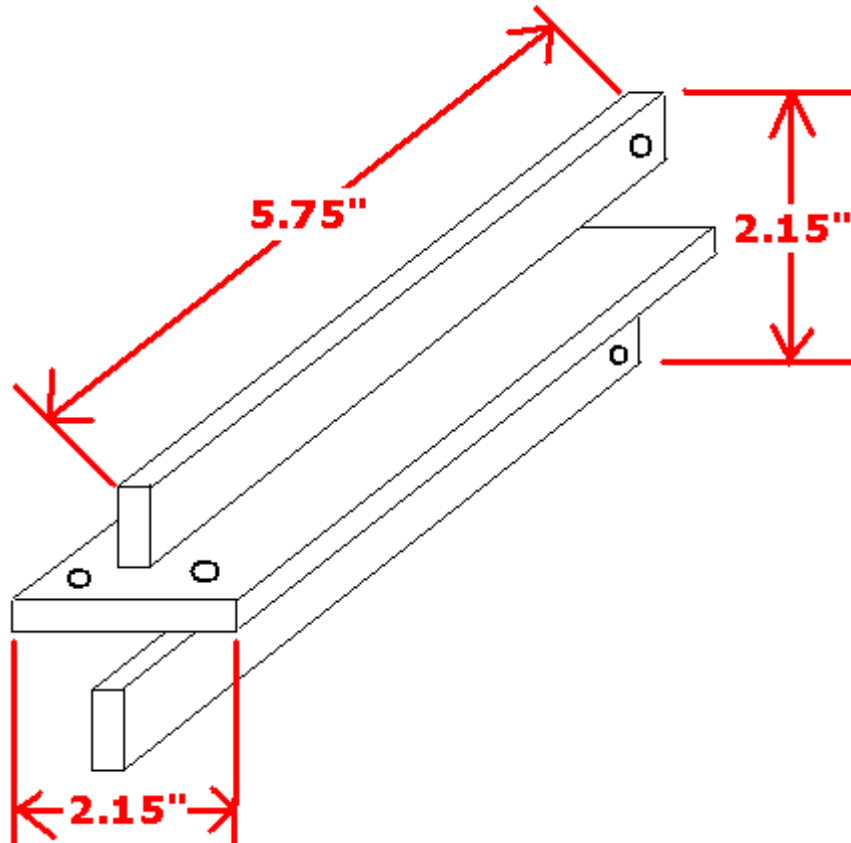




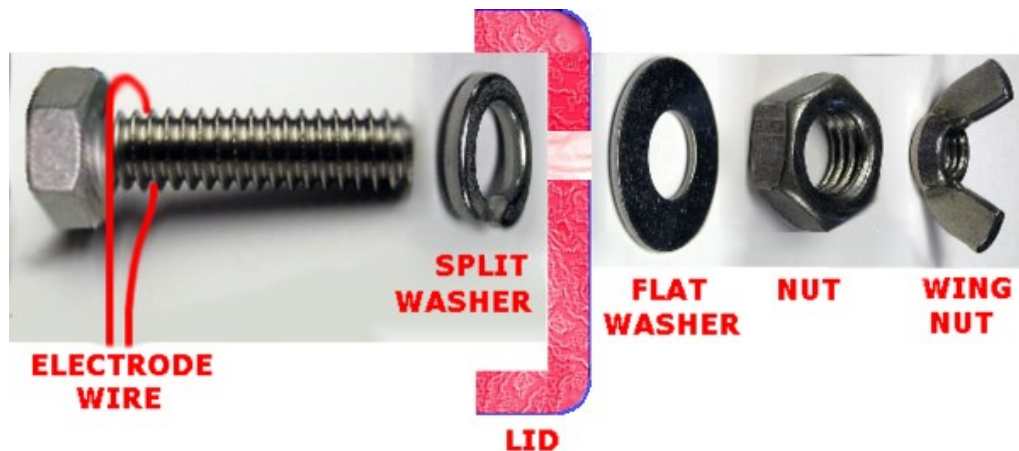
11. Now build a Plexiglas core (or "Tower") for the electrodes: cut two pieces of $\frac{3}{16}$ " to $\frac{1}{4}$ " thick Plexiglas with slots cut halfway as shown in the diagram below, so they can slide into each other. The optimal outside dimensions we've found for each Plexiglas piece are 2.15" width by 5.75" length. Gluing is optional but will help to ease up the rest of the procedure.



12. The drawing below illustrates an optional way of building the tower. You'll need accurate cutting. Join the parts using Plexiglas cement (www.ridoutplastics.com)



13. You may choose to glue the Plexiglas "tower" to the lid. At the time of writing I skip this step; instead, strong attachment of the tower is achieved by threading the upper ends of both electrodes through the 3/16" holes. This also allows the lid to flex under strong vacuum.
14. Now cut 30 inches of stainless steel locking wire.
15. Place the middle point (the fold) on a 1/4" bolt, and tie it around the bolt (one and a half turns).
16. Insert the bolt into the lid, add a split washer, (and a flat washer if it's not glued on already) and a 1/4" nut, then tighten using moderate hand force and a wrench (upper side) and an angled wrench or self-locking pliers (bottom side). Refer to the diagram below for correct parts placement.



17. Insert the loose end of the electrode you've made above, through one of the 3/16" holes in the "tower". Then position the tower in its final place under the lid (bottom, center).
18. Using one hand to stretch the electrode wire and the other hand to hold the tower, start winding the electrode (the two wires together) in a spiral motion down the tower. Start with a strong pitch (step) down the tower and then slow down to a 3/4" pitch.
19. When you arrive at the lower part of the tower, secure the edge of the electrode using pliers. Make sure it winds evenly and tightly around the core. Look at the sample. Some practice is required to achieve the desired result.
20. Repeat the last steps for the second electrode. NOTE: as of 4-15-07, I started braiding the second electrode from a doubled-on stainless steel locking wire. Which means I'm using 4 times the amount of wire (120"), two 60" pieces folded in four and then braiding it using an electric drill. With some patience you can also braid it manually using self locking pliers. The piece holding the other end of the wire must be a 1/4" bolt, since the wire sometimes winds tightly on it so it will be ready to use as a set. I drill a 1/4" hole in a piece of wood and stick the bolt in that hole. The finished product looks something like this:



21. When you're done make sure the wires are straight. Inspect the result: the electrodes should wind down with a distance of $\frac{3}{8}$ " between them most of the way down. It starts with about $\frac{3}{4}$ of an inch gap and comes closer together to $\frac{3}{8}$ " from the second tap or so, as the electrodes get down to the submerged area. The photo below will give you a fairly good idea how the finished result should look like:



22. Now glue the electrodes wherever they touch the tower. Use PLUMBERS GOOP or MARINE GOOP (I'm told by several people that HOUSEHOLD GOOP is just as good but that would have to stand the test of time). A thin to moderate layer of GOOP is all it takes as long as the wire is covered with glue on both sides.

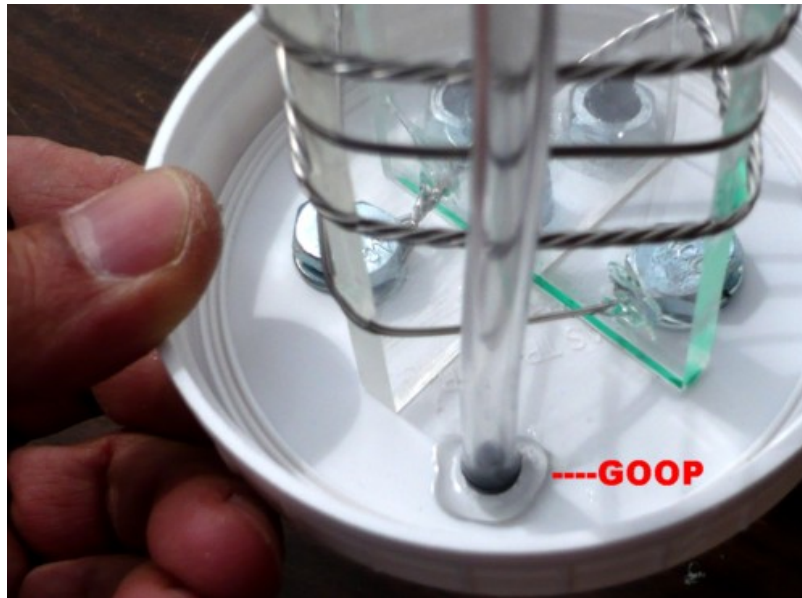
WARNING: DO NOT BREATHE THE FUME OF GOOP. It is toxic. Work in a well ventilated area WITH A MASK.

23. The glue cures in minutes – but let it acquire its full strength – wait 24 hours before use! Let it cure in a well ventilated area, away from children, adults and pets.

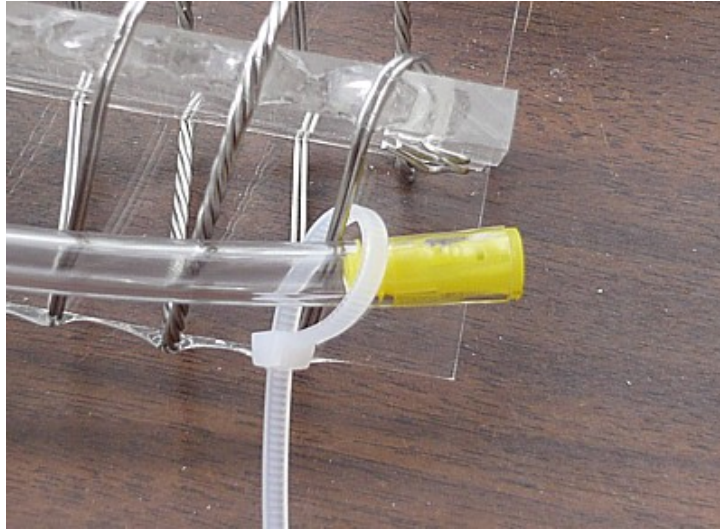
24. Prepare the bubbling tube by cutting 6" clear vinyl or irrigation-type non-clear tubing (0.17" inner diameter). Insert a small anchor into the lower edge of this tubing. This is where the bubbling would come out, so make sure enough air can flow through the anchor. I cut off a portion of its sharper side (about 1/3), before inserting it into the tubing.
25. Glue the air inlet using Goop.



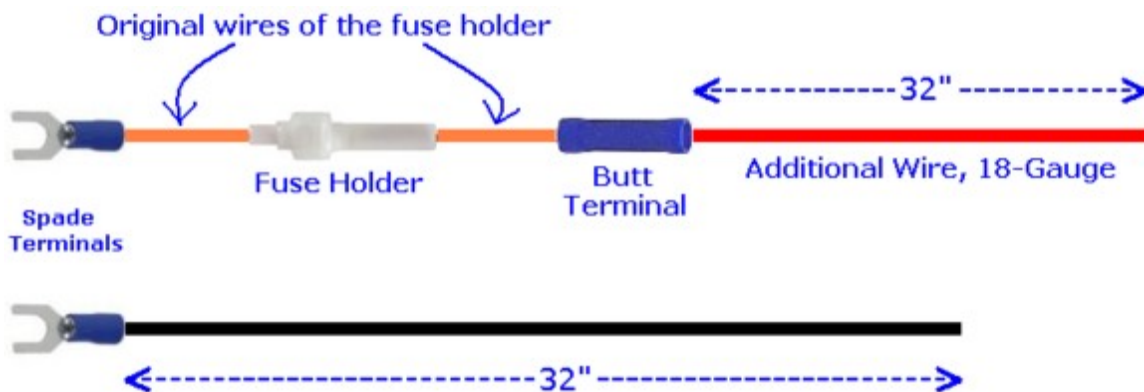
26. From the bottom of the lid, insert and glue the bubbler tubing onto the lower part of the air inlet. The tubing should be secured to the lid with a small amount of Plumbers Goop (don't clog the opening!)



27. Secure the loose end of this tubing to one of the electrodes, using a small cable tie.



28. Add wingnuts to both bolts. **MAKE SURE THE RED WINGNUT CONNECTS TO THE THICKER ELECTRODE** (I don't think you can buy them in color. Spray or paint regular wingnuts with fast-drying red and black paint).
29. Carefully inspect the finished unit for missing parts/glue, loose connections or clogged tubing.
30. Insert the finished unit into a wide-mouth canning jar.
31. Use the following wiring diagram to manufacture the wiring harness. For improved safety place the short part of the fuse holder facing spade terminal (just in case there is 12 volts live on the wire, it will be protected by the fuse holder casing).



32. Add installation components: 3.5-ft long vacuum hoses, universal vacuum-T and bungees. Adding a small supply of Baking Soda (we put 3.8 oz or thereabout in a small ziplock bag) and a 5-ft flex wire-protection tubing will make the package complete and as ready as possible for installation.
33. You're done! And ready to pass **Water4Gas** technology for the benefit of many others. THANKS FOR HELPING TO PRESERVE LIFE ON THIS PLANET!

The manufacturing process given above took **years** of developing and simplifying. It is calculated to facilitate and balance many factors, such as cost, ease of application and final product functionality. DUPLICATION is key, as well as AFFORDABILITY. Yet it is never perfect and we keep upgrading it all the time. If you find – after practice – that certain steps can be improved or eased up, please let us know so we can let others benefit from it.

This procedure does not require any special machines or skills; it can be taught in local classes, workshops or even professional schools anywhere in the world! The more we teach it, the more we're protected from loss of this valuable technology. And the more we open the doors to the public DEMANDING higher levels of free-energy systems and automotive improvements. Remember, the electric hybrid cars we have today were not due to the goodwill of Big Petrol, but due to the efforts of experimenters and environment-conscious folks like yourself.

Keep up the good works!

ELECTROLYZER PARTS

LOW-COST REPLACEMENT PARTS

- **The Glass Jar:** we have obtained these jars from our local Orchard Supply Hardware (OSH) store. Sold usually by the dozen, at 87 cents a jar.

Jar type: ask for "Wide Mouth Mason Jars" or "Wide Mouth Canning Jars".

Orchard Supply Hardware (OSH)
6450 Via Del Oro, San Jose, CA 95119
Phone: (408) 281-3500, website: www.OSH.com

Note that although these jars look fragile, they are made from highly durable glass that will probably outlive the entire system! Just don't hit them with a heavy wrench or something... (remove from vehicle if violent mechanics are going to work on it).



<<< PLASTIC JAR OPTION: use only water filter container! A good one, measuring 12" high by 5.25" wide, may be obtained for \$24 from HydrogenGarage.com

(stores.homestead.com/hydrogengarage/Detail.bok?no=1)

- **The Jar Lid:** there are two options here, each with its unique advantages. You can use the original metal lid that comes with each jar (cheap and immediate but adds complexity because you'll have to isolate at least one of the electrode terminals).



Better order **plastic lids** from:

Kitchen Krafts, PO Box 442, Waukon, Iowa 52172
Phone: 800-776-0575, website: www.kitchenkrafts.com

Order item PG0182 Widemouth size. DON'T order #PG0181 - it's the wrong width! Each lid costs 62



cents, ***sold in packs of eight.***

- **The Check Valve:** "check valves" are one-way air activated valves, used mainly for aquariums. They can be found in almost any aquarium supply store for about \$3 each. Online they can be obtained from www.fish.com (\$1.35, Item 701019) or from www.arcatapet.com (\$1.42).



- **The Tee or Elbow:** these are 1/4" barb tubing adapters used to connect pipes together. They can be found in almost any aquarium supply store. Or you can order them online from www.AquaticEco.com (part # 62064), phone orders 1-877-347-4788.

Another place to order online is www.imperialinc.com (item 37365). We prefer the "elbow" design, get at Home Depot for about \$0.15 each.



BARB "ELBOW" ---->

- **The couplings or barbs:** find those at Home Depot, look in the irrigation (gardening) department.

It could look like the one in the picture or similar, or "barb" type similar to the Tee shown above. It's good as long as it can connect two pipes or tubing of 1/4" each.



- **The Universal automotive tee:** order online from www.imperialinc.com (item 37351). Or find at AutoZone (part number 373175) or Dorman part # 47349, barcode 3749547349-1) \$1.99 each.



- The following hose types may be used:

- a. **Vacuum hose (automotive)**: This is the black rubber type and is **very durable** for under-the-hood conditions of extreme temperatures and chemicals. Get at Auto Zone or order item 95922 (\$15.50 gets you a 50-ft spool) from:

Imperial Supplies LLC

Sales Dept. 1-800-558-2808, or www.imperialinc.com
789 Armed Forces Drive, PO Box 11008
Green Bay, WI 54307-1008



- b. **Aquarium hose**: all aquarium supply stores have those, usually the clear vinyl type. You need the 1/4" or 3/16" inner diameter type. If you decide to use this option, MAKE SURE IT DOESN'T TOUCH HOT PARTS OF THE ENGINE.
 - c. **Irrigation hose**: find at Home Depot's irrigation (gardening) department or at OSH stores. It's clear vinyl, similar to the aquarium type. Not on their websites, you have to walk into the shop. As above, MAKE SURE IT DOESN'T TOUCH HOT PARTS OF THE ENGINE.

- **Air Inlet or "Bubbling Adjuster"**: This is an adjustable irrigation cap – order it online (item "DAB", \$0.45) at: www.dripworksusa.com/store/adsprink.php#DAB

We also found this exact same item in the irrigation dept of Home Depot, paired in small bags marked "Adjustable Dripper" (model B02B, sold in pairs for about \$1.30).

- **Electrodes**: the electrodes inside the device are made from stainless steel wire, which is spiraled and glued around a core of plexiglass. Never use aluminum or copper wires - although these are great electricity conductors, because they would be destroyed by the electrolysis. Stainless steel wire may be obtained from Harbor Freight for \$4.49 (item [8895-4VGA](#)).

Galvanized wire may work for a while but will create a lot of mud fast, and is not half as durable as stainless steel. A cheap 20-gauge galvanized steel wire may be obtained from Home Depot (barcode 49223501345). Not recommended. Once you see the amount of dirt it creates, believe me, you wouldn't want to use it.

Marine supply: item 755410 (20 gauge, \$2.99) at www.Defender.com or item SLWQ041 from West Marine. Or walk into a marine store and ask for "Stainless Locking Wire".



Better wire (19-gauge stainless steel) that's cost effective for small quantities is www.NatMan.com - use their website to locate hardware stores near you. Item N264-705 (barcode 3861326470-0). For about \$4.20 you get 30 ft (\$1.40/unit).

UPDATE APRIL 2007: Started to make the anode (positive electrode, red wingnut) doubled and braided, in an attempt to slow down anode oxidation. In June 2007 we switched to different steel for the anode - grade 316L instead of grade 302/304. I hope this is it.

UPDATE MAY 2007: Started using a different steel that is rust proof, and stopped braiding the wire. The wire must be stainless steel "grade 316L", which means it is much better suitable for underwater conditions. I order it from **Sunset Wire** (now called GDC) out of Fontana, California. Phone orders only 1-888-285-3919.

Another source for 316L is **McMaster-Carr** (mcmaster.com), phone (562) 463-4277. McMaster-Carr are not as cheap as Sunset Wire but are very organized. When you visit their website just search for "316L" and it will lead you through the options.

- **Terminals:** The electrical terminals on the lid are made from standard 1/4" screws, regular hex nuts, washers and wing nuts on top. Find all those at the hardware department of Home Depot, ACE or any hardware store.

The wing nuts are painted black and red for clarity, and in newer models (shipped after April 15, 2007) it is important because the electrodes may be different. The anode (positive electrode, red) must be connected to plus 12 Volt.

- **Electrical Wiring:** automotive wires can be obtained at almost any hardware or automotive store. For cost effectiveness, purchase red and black 100-foot rolls of 14 gauge wire from AutoZone, at around \$10/roll, that's good for many of your wiring needs. Not on the website - walk into the store or phone 1-800-288-6966.
- **Fuse Holder + Fuse:** this can be any type of in-line fuse holder found at AutoZone, Home Depot or electronics stores, like the blade type or the tubular type. Both types usually go for \$2.50 apiece.



FUSE TYPE: **NEVER USE A WIRE OR ANY OTHER IMPROVISED FUSE.** Use a standard fuse that matches the fuse holder you have, and select that rating (usually 5 Amps to 15 Amps) in accordance with recommended fuse ratings.

- **Accessories:** Small bungee cords and cable straps can be obtained from any hardware store. We usually buy packages of 20 bungees from OSH or Harbor Freight for \$4.99 (\$0.25 each). A hundred 8" cable ties are \$2 and 11" are \$5.

- **Water:** Ralph's groceries sell a gallon of distilled water for 99 cents. Other places have varying prices, sometimes as high as \$1.29. Is this better water for our purposes? I don't think so, but go ahead and test your local water.

Some folks say that water quality does matter - even for car use. Well that's alright with me, and I'm thinking maybe in the future we'll be able to grade water like we do gasoline today. Like, Ralph's water would be 87 octane, Albertson's might be 89, and so forth...

...Me, I'm sticking with "100 octane"...rainwater. It's free energy from the sky - put your buckets out!!!

- **Electrolyte:** The typical bag (3.8 ounce, recommended) should get you started (6 to 10 months per my calculations). Its correct name is "Sodium Bicarbonate" = **Pure Baking Soda**. You can get more of it at most groceries.

Electrolyte Option 1. Pure Baking Soda (such as Arm & Hammer) is a NON-harmful Electrolyte. In the long run it may produce a bit of mud in the water. BUT IS FAR SUPERIOR IN TERMS OF SAFETY! I brush my teeth with it. I've driven with it for months with good results. We get 12-lb bags from Costco for \$5.95 (1-800-774-2678, visit www.costco.com for local store locations). 12 lb is too much for most users - get a small box from your grocery at about \$1.50



Electrolyte Option 2. NOT SAFE, SEE WARNING BELOW! NaOH: (Lye, Sodium Hydroxide, Caustic Soda, drain opener powder). Costs \$2.49/lb at www.AAA-Chemicals.com

Electrolyte Option 3. NOT SAFE, SEE WARNING BELOW! KOH: Potassium Hydroxide. Cost \$2/lb at www.AAA-Chemicals.com

AAA chemicals
601 Oakdale street
Shoreacres, TX 77571
Email: info@aaa-chemicals.com
Phone 281-841-6987

SEVERE WARNING! Corrosive chemicals - wear gloves & goggles, exercise extreme caution when handling!! These optional chemicals are DANGEROUS. Remember it is illegal to store chemicals in food containers! DO NOT TOUCH, SWALLOW OR BREATHE. In case of contact flush with lots of water and consult your physician immediately. **WARNING! DO NOT USE THESE CHEMICALS WITH WATER4GAS TECHNOLOGY--USE BAKING SODA--THESE ALTERNATIVES ARE DANGEROUS -- NOT RECOMMENDED BY WATER4GAS -- PROVIDED FOR INFORMATION ONLY!!!**

Version Release Date: 11/10/07

"DO YOU SELL REPLACEMENT PARTS?"

Question: "Do you guys sell components or replacement parts?"

Answer: "Sorry, but we DO NOT sell nor provide replacement parts. That will be missing the point."

Question: "What IS the point?"

Answer: "Well, the point is that we've worked hard to make all replacement parts and supplies SO simple, affordable and easy to obtain near your home or from the comfort of your keyboard. We cannot compete against the giants and try to be Home Depot, Auto Zone and your grocery, as well as doing our research & development, all at the same time. You see what I mean?"

So the answer is no...and we're not going to ship a fuse to Japan, either." 😊
Thanks for your understanding!

REPLICATING THE VAPORIZER

OPTIMAL AFFORDABILITY

Since this device can work all by itself to save gasoline and reduce emissions at the same time - it is the cheapest Gas Saver in the galaxy! When purchased bulk at the prices shown below, the entire cost of materials is \$1.55 per unit. This includes the mason jar, although you can use just about any throw-away glass jar, which will bring the cost down to 68 cents...

To connect it in the car you may also need the "Universal Vacuum T" which can be obtained from Auto Zone for \$1.99. Even when parts are purchased in low quantities, you can still replicate it on pocket change!!!

GET THIS LIST OF COMPONENTS

1. One Mason Jar - 87 cents at OSH stores. Barcode 14400-67000-8 is widemouth, but any similar jar will do, like the regular mason jar by Ball. Even a used mayonnaise glass jar do, as long as it's about a quart (roughly 1 liter) in size, or anything else that can fit somewhere in your car's engine.

Are you thinking right now of "improving" it to plastic? LET ME TELL YOU RIGHT AWAY THAT THIS GLASS JAR IS THE BEST. It lasts forever in any car or truck I've seen. It will outlive any plastic and is actually cheaper!

2. One "Elbow" fitting - find at the irrigation department of Home Depot, or order part number FITH83-1 at www.gardendrip.org (about 9 cents):



3. One Bubbler Cap - 45 cents at www.dripworksusa.com (part number is "DAB").

Or find it under the name "Adjustable Dripper" at the irrigation department of Home Depot, part number B02B, barcode 1315899988-1.



4. Six inches of vinyl tubing (0.17" inner diameter) - costs 7 cents when cut from a 20' pack, Home Depot PLUMBING DEPT, barcode 48643025493. Any thin irrigation tubing will do if you don't have the clear one; color and exact material are not important as long as its inner diameter is about 0.17"
5. One anchor out of a pack from Home Depot, usually in the Electrical Department (complete description: Yellow Anchor 100-pk "Crown Bolt" Ribbed Anchors 4-6x7/8, barcode 76818030010). This anchor fits perfectly into the tubing, its outer diameter is 0.19". You can substitute it with any similar anchor if you don't need the whole package. About 3 cents each.
6. Plumbing Goop - find at the painting department of Home Depot or Ace Hardware. About \$3.80, good for maybe a hundred units, so let's say 4 cents worth of glue. **You can also use J-B Weld, Epoxy, etc.**



**HEALTH WARNING:
DO NOT INHALE THE FUMES OF THESE STRONG GLUES.
FOLLOW THE SAFETY GUIDELINES ON EACH PACKAGE.**



CONSTRUCTING THE VAPORIZER

1. Cut a 6" to 8" piece of vinyl tubing.
2. Cut the tip of the anchor (remove about 1/3 off the pointed side) and stick it into the end of the tubing. This is the easiest and cheapest tip I have found, but you may choose to use an aquarium bubbler stone instead, or an irrigation diffuser (spray or mist tip).



3. Drill **or punch** two holes in the flat part of the jar's lid. One 1/4" hole in the middle, and one 7/32" hole about 3/4" from the edge. I purchased a basic **punch set** at Harbor Freight Tools for under \$6, which makes holes with one or two hits of a hammer over some soft wood or plastic; saves time and makes neat holes.

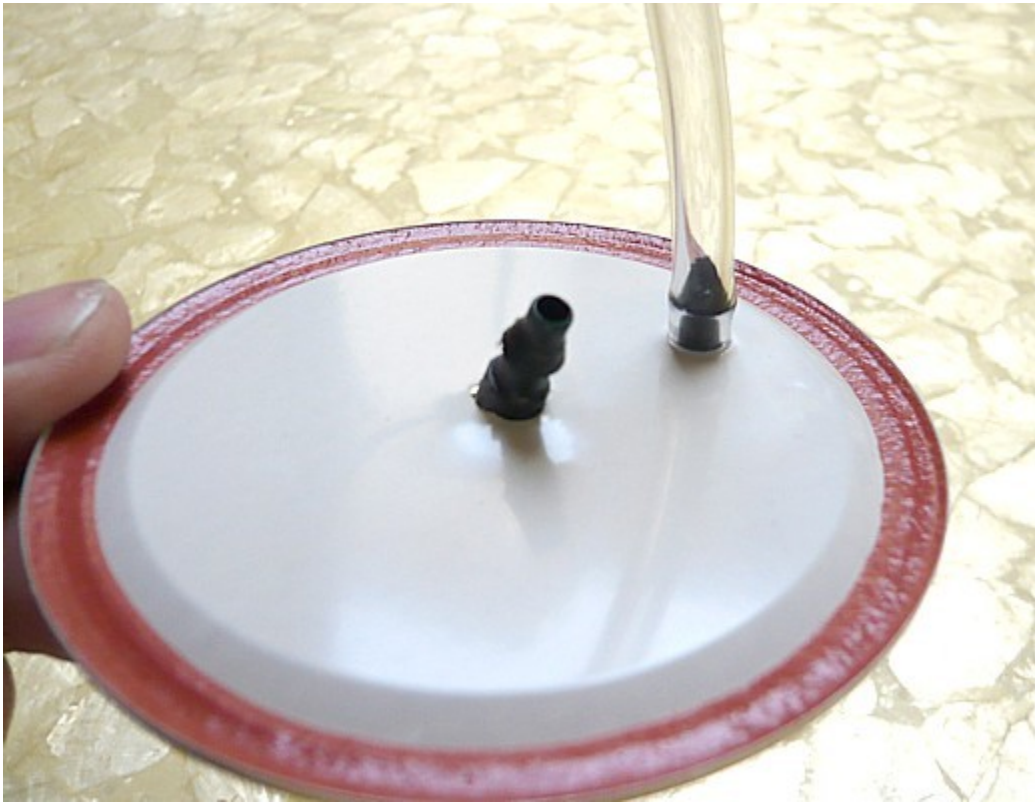
Note: the metal lid will eventually rust in the presence of water. Two possible solutions: (a) paint it with rust-proof paint. Or better yet (b) the most durable solution would be a plastic lid from www.kitchenkrafts.com - be sure to order the WIDEMOUTH lid, item PG0182, if you're using the widemouth jar. For the regular jar get item PG0181.

But for testing purposes, the original lid (unpainted metal) will do and will probably survive several months without rusting too much; don't worry about the engine because the rust does not get into the engine.



4. Using Goop, glue the parts to the lid as shown in the photos below (glue not shown).





Add goop glue to these parts at the bottom side of the lid. Sometimes I add a ¼" nut on the elbow, PLUS glue on both. It just makes it easier to hold everything in place, but the elbow can be fastened with a small cable tie or a piece of wire just as well:



After glue and some black paint, it may look like this: (I don't paint the rotating rim, only the center stationary part is painted)



NOTE: the metal lid will eventually rust and we're aware of that. It should hold for a year or so, and by then you will have ample time to test the effectiveness of this device IN YOUR VEHICLE. As I said it has proven workability in model years 1995 and older.

If it works well for you, it is so easy to replicate that you should be able to make a dozen in one afternoon. Give some of those to your friends to test too!

REPLICATING THE MAP SENSOR ENHANCER (DEMSE)

STRUCTURE

This device is very simple and basically consists of a plastic box, two variable resistors (potentiometers or "pots"), a switch and a few wires. Anyone who had basic training in electronics and can solder parts together, can replicate this device in one afternoon.



WHERE TO GET THE CORRECT PARTS

I found some surplus pots at All Electronics, Van Nuys, CA www.allelectronics.com. But then they ran out of these. There are similar potentiometers at Electronics City at Burbank, CA, near the east end of Burbank Boulevard. But they are very expensive if you ask me.

Online you can order it from one of the following, but there are thousands of other sources around the world. Even a used one from an old instrument will do. All you have to keep your eyes on is that it is "LINEAR" type (marked A) which means the resistance is spread evenly across its movement range. The "B" type is non-linear, and is good for audio applications. It's what you would normally find as the volume control in radios and old TVs. "B" type will work but will be much harder to tune. You

want to see "LINEAR" in the catalog, and the part itself will be marked "A" near its printed or embossed value.

Item PC26 from www.action-electronics.com/pots.htm - \$3.25

Item 1241 from <http://www.cascadesurplus.com> - \$1.00

Item 271-1722 from <http://www.radioshack.com> - \$2.89



Each of the suppliers should also have a matching knob. If it has a long shaft like the one from Radio Shack then you will have to cut it with a jigsaw which is quite tricky (try to get one with a shorter shaft). All the above are designed for easy panel mounting. Just drill a hole in the dashboard - or add a little panel or box under the dashboard.

I have the Digi-Key and Jameco catalogs, you can ask me for help, or search and order yourself online at <http://www.DigiKey.com> or at Mouser Electronics <http://www.Mouser.com>

In the Mouser Catalog I have isolated the parts that are major but most hard to find - good pots and compatible knobs. Well, I mean hard to find in this quality, price range and compatibility to each other. Both items below should be in-stock. So in the bottom line I recommend you order the following parts, directly from [Mouser.com](http://www.Mouser.com)

1. Potentiometer 50K Ohm:

part # **31VF405**.

Prices: 1 each \$1.25, 10 each \$0.96, 100 each \$0.87

2. Knob (matches the pot's shaft perfectly as far as I can see in the catalog):

part # **450-3034**.

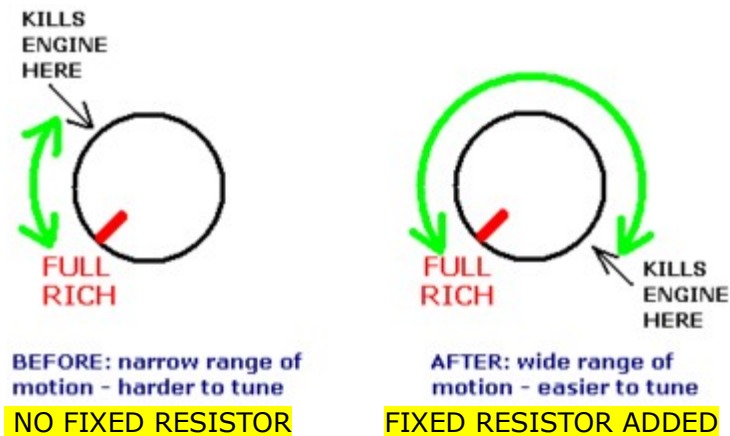
Prices: 1 each \$0.54, 10 each \$0.36, 100 each \$0.33

NOTES:

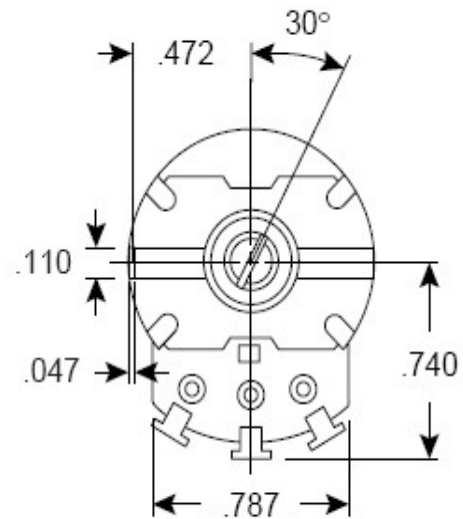
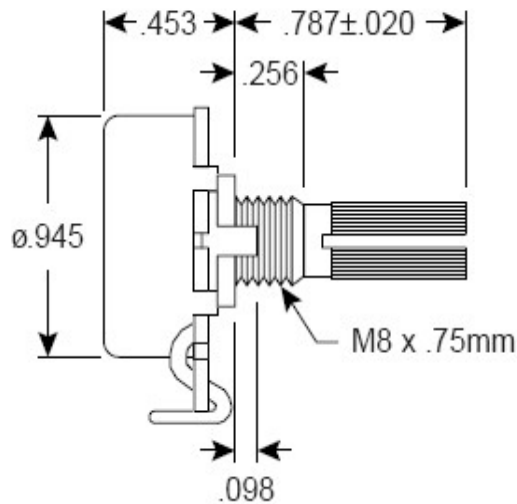
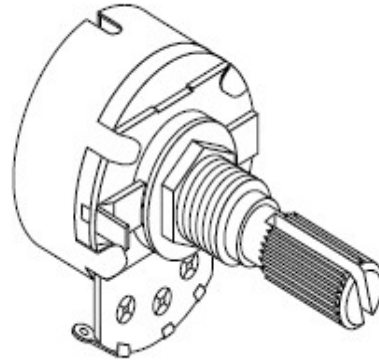
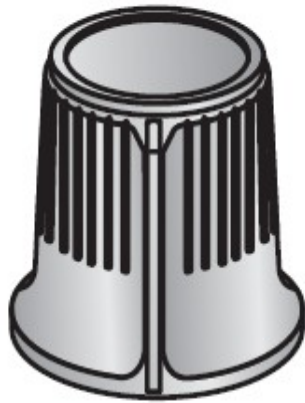
- Some experimenters I talked to said that a 100K Ohm potentiometer is needed. According to my experiments, measurements and calculations, the 50K does a perfect job. They should cost the same so you're welcome to experiment with a both values, especially if you're about to furnish an entire fleet of similar vehicles with duplicates of this device.
- You can replace the fixed resistor with a "trimmer" (small variable resistor) that will reside *inside* the box. This trimmer, usually adjusted with a small screwdriver, will enable you to find the optimal value of that resistor.

How do you know when it is optimal? You play with the trimmer until you get the widest range of motion on the knob:

This trim is hidden from the final user, and can be eliminated in mass production by duplicating the optimal value found.



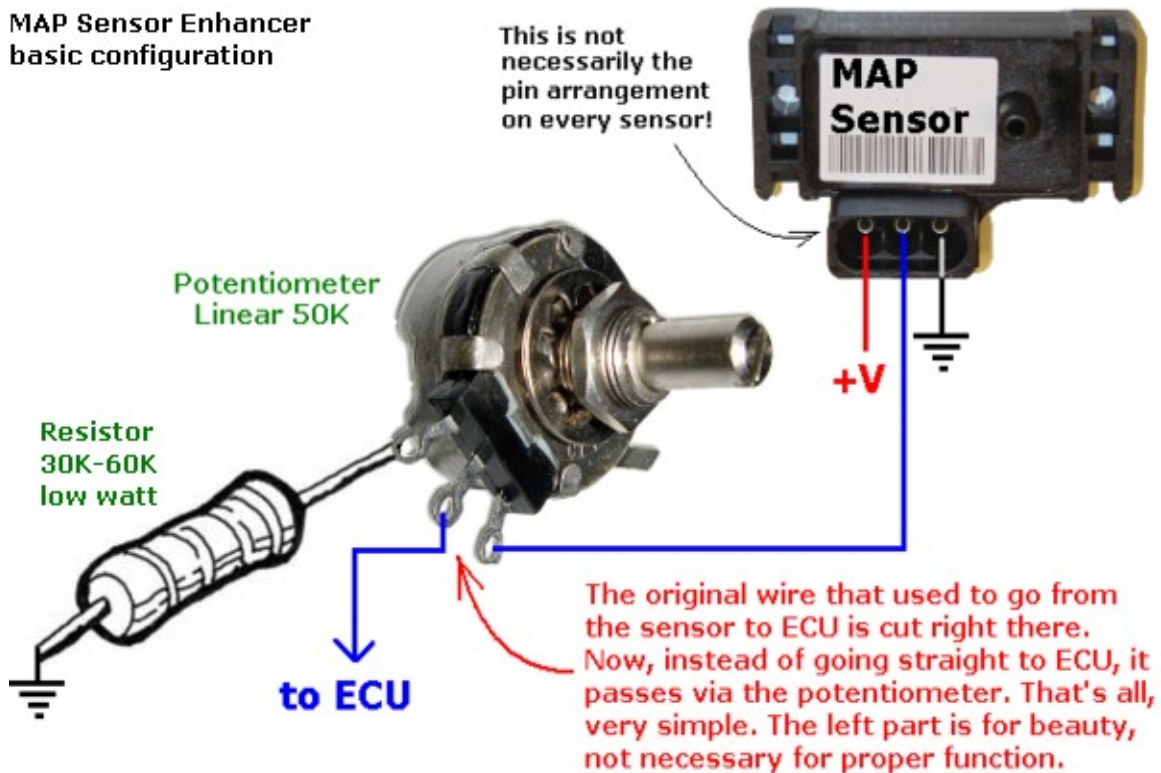
Fits 6mm, 18 tooth shaft
White Indicator



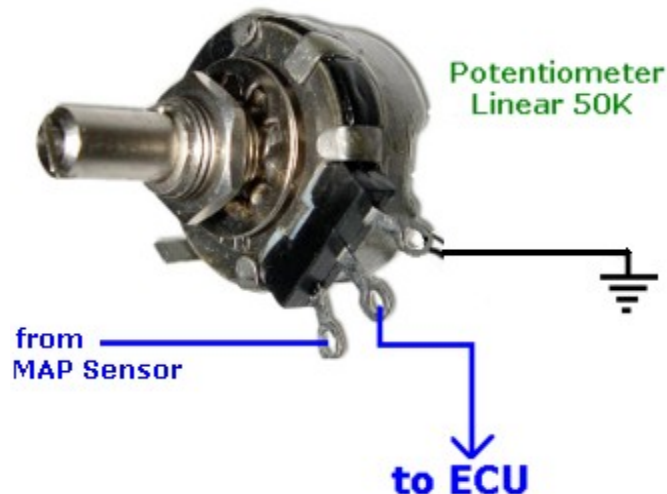
DIAGRAMS OF SEVERAL DESIGNS

Below is a simple design. I had LEDs and stuff but then eliminated them for simplicity. Besides, they were not much help in tuning the device. You'd better do it by simply feeling the car's pull, vibration and behavior (especially uphill). The resistor helps widen the effective rotary range of the knob. NOTE: the resistor that worked best for my sensor was 33K.

MAP Sensor Enhancer basic configuration

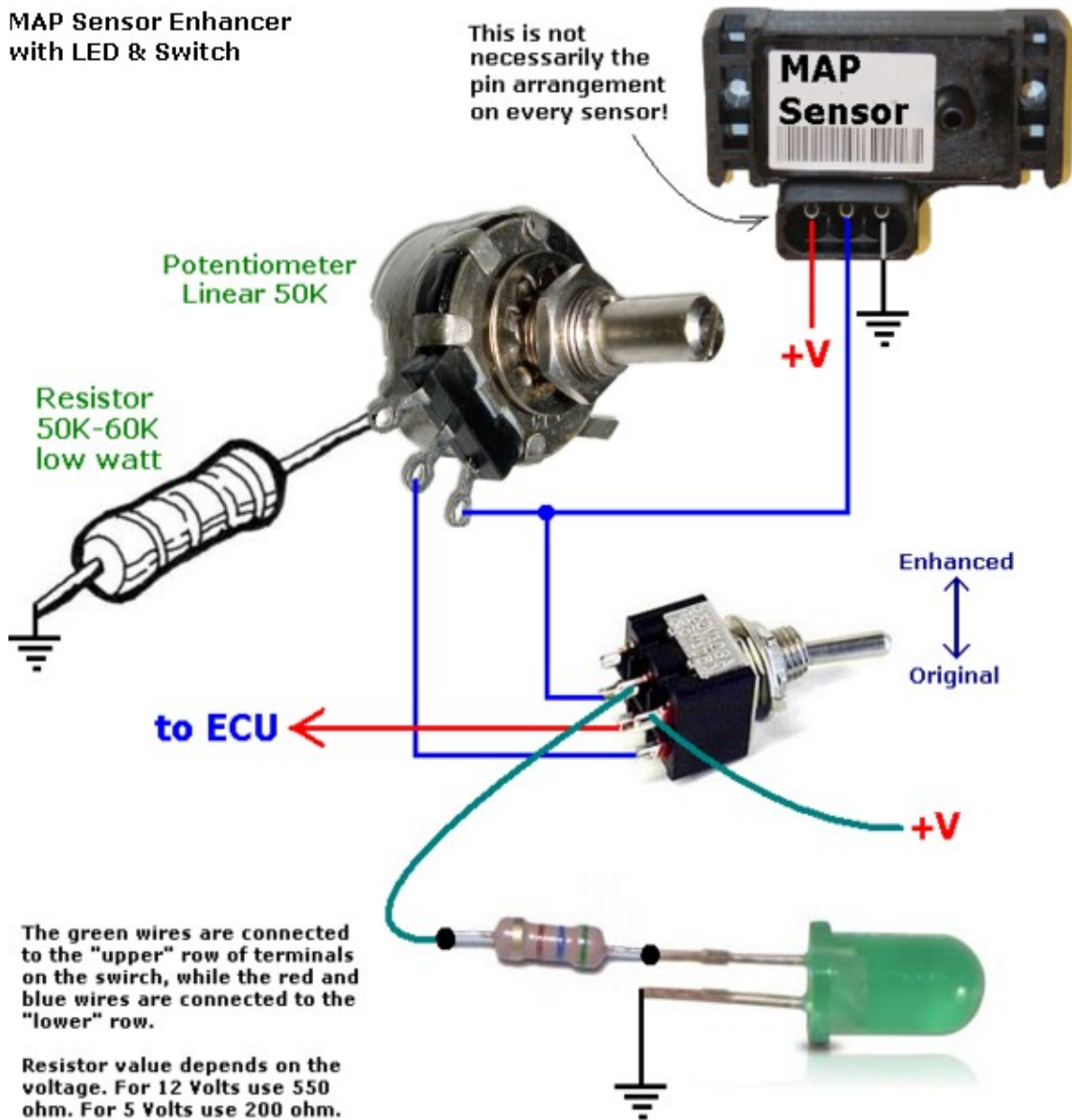


The optimal fixed resistor may be 33K Ohm but that depends on the car. The simplest and cheapest possible way of doing this is to find an old potentiometer with a value of 50K to 100K (should be 50 cents in a surplus store), and connect it on the MAP Sensor line, as shown below:



An optional design is depicted in the diagram below. A DPDT switch is used to switch between the original connection and the enhancer (via the pot). The LED will light up when you're in enhanced mode. If you don't want this LED, use an SPDT switch.

MAP Sensor Enhancer with LED & Switch

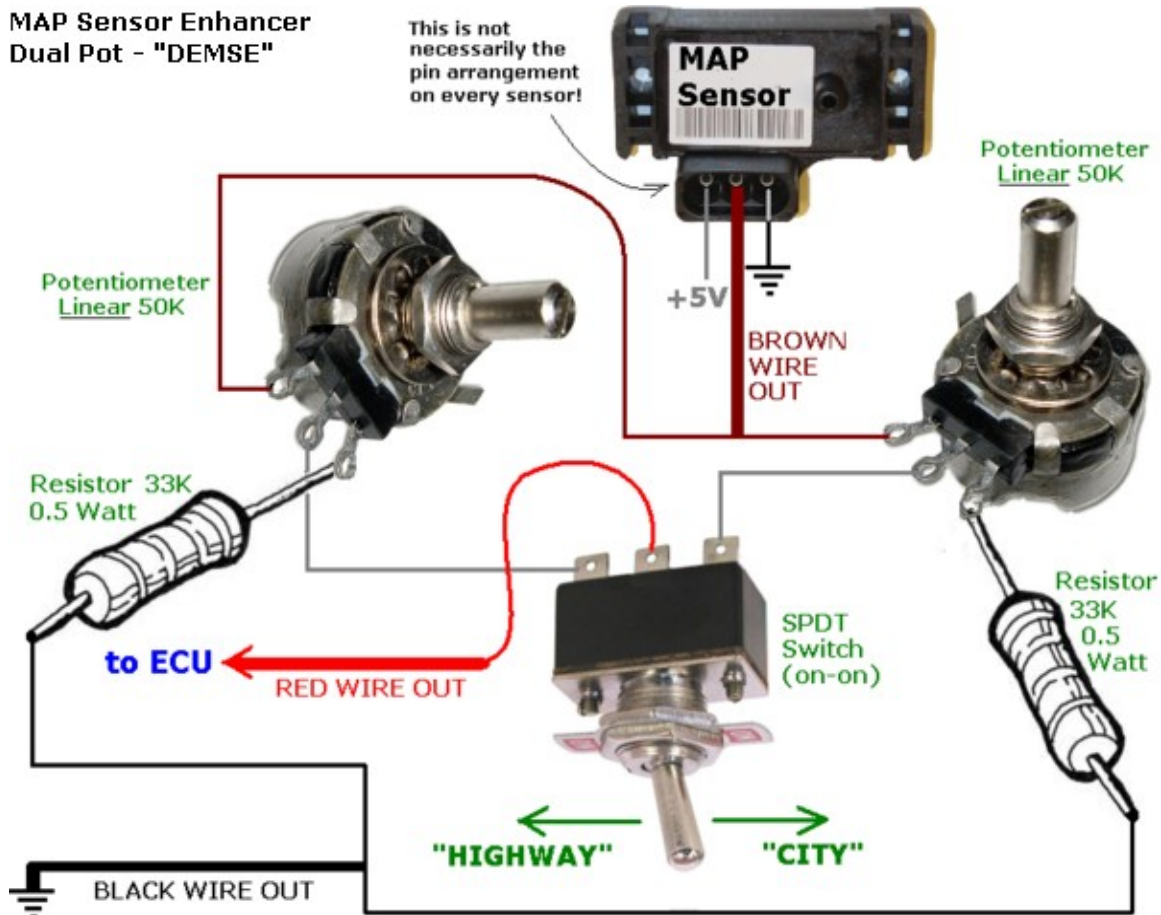


The latest version has two potentiometers so one can be set to city conditions while the other optimized for the highway. Wire colors have been chosen randomly, they don't mean anything. Simply connect the corresponding points as shown to the sensor, ECU and ground. Extend the wires to the dashboard or beyond to your convenience.

Leave markings up to the experimenter or the final user of the vehicle. BEFORE TUNING the left side (marked "highway" in the photo) is 100% identical to the right side (marked "city"), and markings should reflect actual use of these sides. For instance you can mark one side as "enhanced" and the other side would be marked "original" (in which case you leave that side at full-rich position) so now you can switch between enhanced mode and original factory setting. Or mark them "hot

engine" vs. "cold engine", or "bypass/uphill" vs. "flat road" - or whatever suits your use and driving conditions.

MAP Sensor Enhancer Dual Pot - "DEMSE"



There diagram means what it says! It has been edited several times until every detail was perfectly workable (other than resistor values that may require changes in some cars). Even the pot side to which you solder the connections was taken into consideration. It has to be replicated exactly as shown for best results and that's why I put pictures instead of electronics symbols.

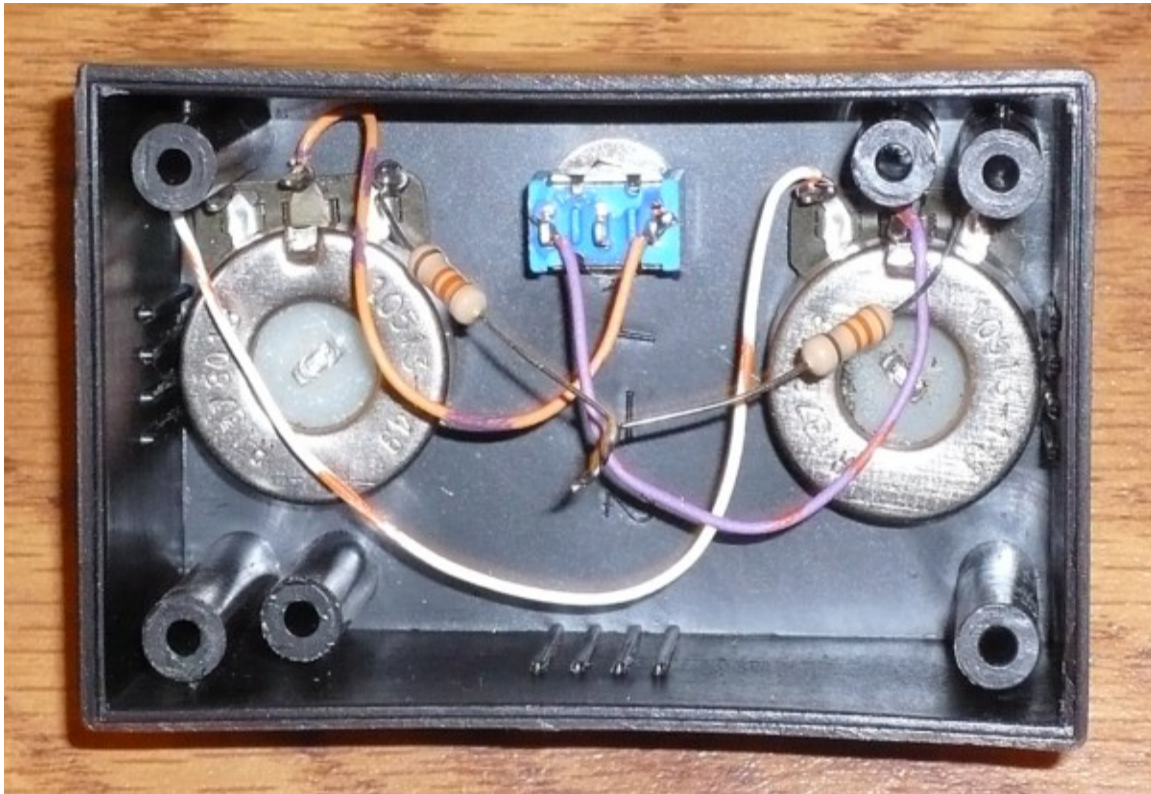
You're looking at two hookups. There are two parallel pot circuits shown, but you can build three or more identical circuits – and change the switch to one that can select between these three or more inputs.

The signal from the sensor enters at the "higher" end of the pot. It sees the pot in series with a resistor to ground. The ECU sees only PART of this incoming signal, depending on the position of the pot.

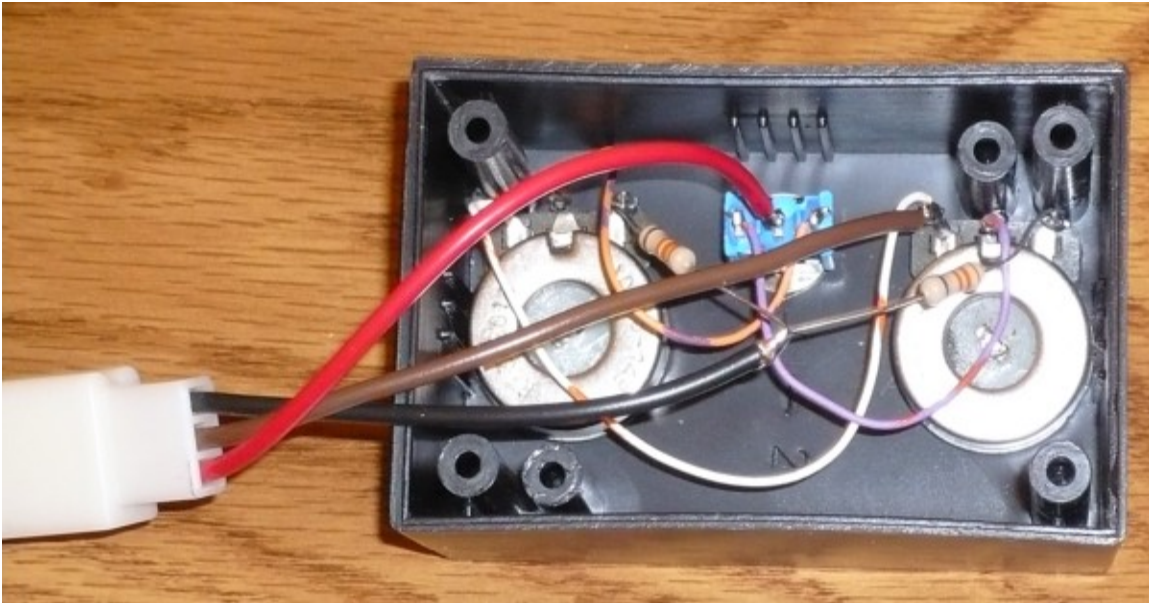
The fixed resistor (on each side) is there for a reason. The signal is not full range from 5 volt to zero. It has a more limited range closer to the 5 volt. Which makes the lower end of the pot non usable, since there is no point in sending 1 or 2 volts to the

engine, it will kill it. So I added those resistors to enable a much wider rotation of the pot to be usable. It makes tuning easier.

The photograph below shows how the parts are connected inside the box:

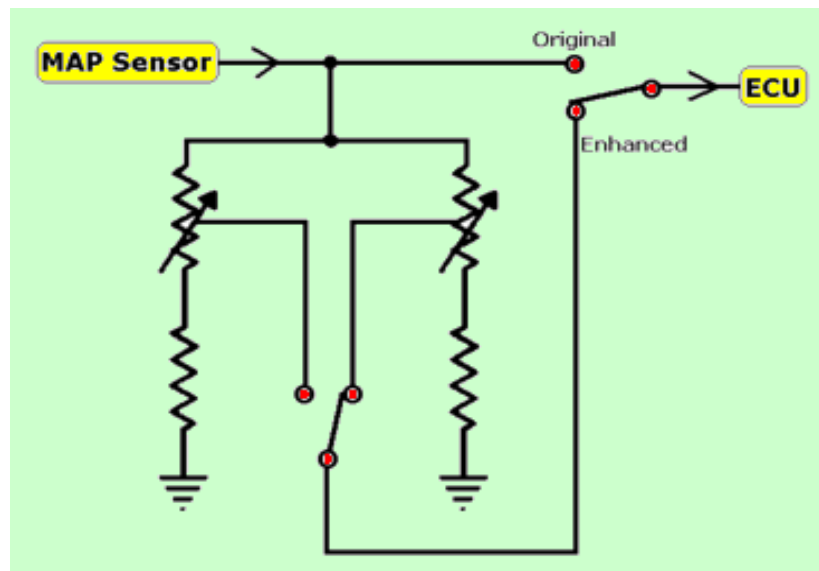


The external wires are then connected as shown below. The external plug is useful for maintenance of the device, but is not vital. I mean you can wire the enhancer straight through from the driver's cabin or dashboard to the engine compartment.



GETTING FANCY

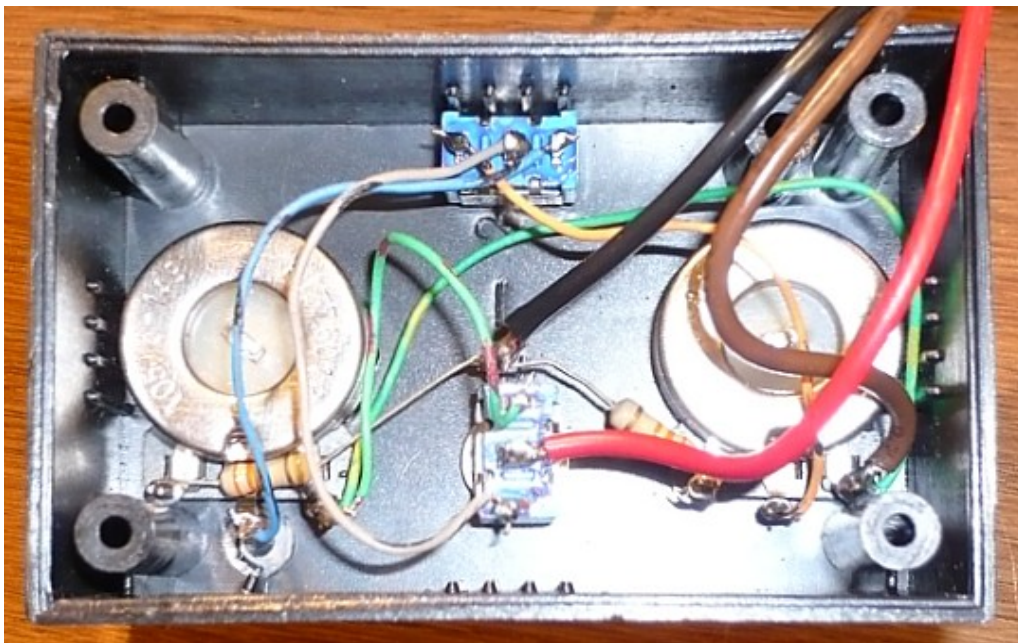
If the above is not enough...here's a fancy alternative. Add a second SPDT switch (see def.) to toggle between **Enhanced** mode (lean mixture with the right knob or the left knob) and **Original** mode, or factory setting – in which the original (incoming) signal goes right through to the ECU.



The actual enhancer will look something like this:



And the wiring will look as shown below. The output of the upper switch (gray wire), or in other words the selection of that switch, is connected to the lower switch for further selection. The other input of the lower switch (green wire) is the original signal coming from the MAP Sensor. So if "Original" is selected on the lower switch, then the thick red wire, which is output to ECU, will get the full MAP Sensor signal regardless of any knob setting.



REPLICATING THE FUEL HEATER

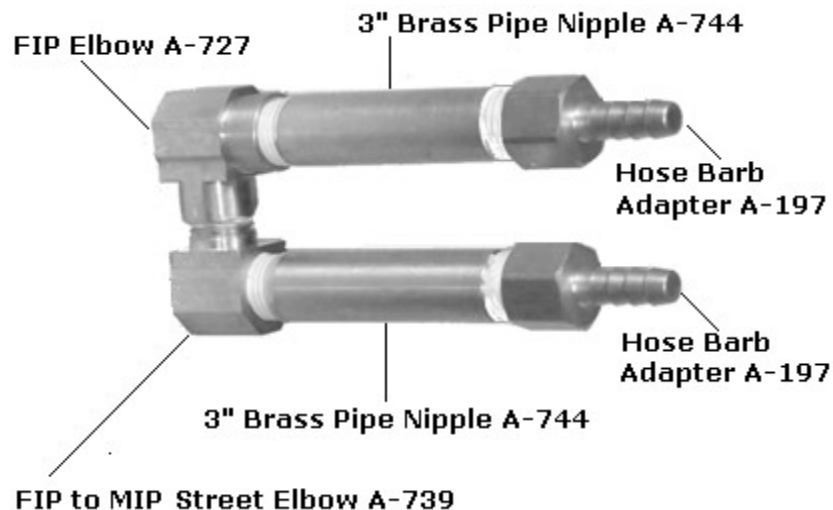
STRUCTURE

To replicate this Fuel Heater simply put together the parts listed below. Use the photo of the device, it's very simple to assemble once you have the parts in your hands. Don't forget to add Teflon tape over the threads to prevent fuel leaks. **MAKE SURE** **THOUGH** **THAT** **THE** **TEFLON** **DOES** **NOT** **SEAL** **OR** **BLOCK** **THE** **PASSAGES**.

Since it's so simple I'll only give you catalog numbers and descriptions. Home Depot should have the metal parts listed. If you can't find these exact parts in your area or country, just go into your favorite plumbing supply shop, show them the photo and list, and ask for similar parts. An exact match or length, diameters etcetera to my list is not critical. As long as they fit each other, it should work.

"FIP" means Female Iron Pipe. Even though these are not iron but brass, this is how plumbers describe these babies. "MIP", then, means Male Iron Pipe. Pipe sex :-)

Put soap on the barbed fittings to help slip them onto place. Fuel will not go through the soap. Do not use dry connections. Each hose connection must be secured by a steel gear clamp, even though the manufacturer says they can fit without clamps (which is true only for certain types of barb connectors).



PARTS LIST

Qty	Description	Catalog #	Source	Barcode
2	3" Brass Pipe Nipple	A-744	Watts	04864307225-1
2	¼" Hose Barb Adapter	A-197	Watts	04864307103-2
1	FIP Elbow	A-727	Watts	04864307212-1
1	FIP to MIP Street Elbow	A-739	Watts	04864307220-6
4-6	½" Stainless Steel Gear Clamp	62604	Home Depot	07857510304-4
2	Fuel Injection Hose	H-204	Gates	02976935075-1
2	Aluminum foil – 12" x 12"	--	Kitchen & Beyond	69137445041-8
~10	Cable ties – 11" BLACK	34637	Harbor Freight	79236334637-5

To connect between the existing fuel lines and the H-204 hoses, you will need to add barbed fittings that fit your car's fuel lines - we can't guess what inner diameter they may be. They will look something like this...



...or like this:



The hose specs below are for the **minimal quality** hose. **DO NOT USE CHEAP HOSE!** You can either use **steel-braided Teflon hydraulic hose** from a hydraulic supply store, or the type shown below which is from the **NAPA Auto Store** (locate a store near you by visiting <http://www.napaautocare.com>).

The first kind is cheaper (about \$2.40/ft) but requires special fittings (about \$2 each end) that any hydraulic supply store can prepare for you. The second type from NAPA is more expensive (\$5.95/ft) but can slip on directly on the Fuel Heater.

In my opinion the second type is much safer for high temperature, high pressure fuel. It looks like simple rubber but it is far from it.



Fuel Injection Hose

Recommended for **clamped** hose applications on all fuel systems, including fuel injection systems. Not designed to be coupled on fuel injection hose assemblies.

Fluoroelastomer liner resists permeation and alcohols, Hypalon* backing combats heat, polyester braid reinforcement increases strength and Hypalon cover fights heat up to +300°F (+150°C), ozone and abrasion. Meets SAE 30R9 requirements.

Approved for gasoline, alcohol blends and diesel fuel. Resists "sour gas" (hydroperoxides) produced in some recirculating fuel systems. Can be used with 100% methanol.

I.D. (In.)	I.D. (mm)	Work. Press. (psi)	Length (Ft.)	Part No.	I.D. (In.)	I.D. (mm)	Work. Press. (psi)	Length (Ft.)	Part No.
1/4	6.35	180	2 Clamshell	H201	3/8	9.52	180	2 Clamshell	H203
1/4	6.35	180	10	H204	3/8	9.52	180	10	H206
1/4	6.35	180	25' Reel	H210	3/8	9.52	180	25' Reel	H212
5/16	7.93	180	2 Clamshell	H202					
5/16	7.93	180	10	H205					
5/16	7.93	180	25' Reel	H211					

*Hypalon is a registered trademark of DuPont.

FIRE HAZARD!!! DO NOT USE REGULAR FUEL HOSE FROM THE AUTO PARTS STORE because it will crack under the pressure (60+ psi) and high temperatures (180-200 degrees Fahrenheit). The hose type shown here is manufactured by Gates* (full contact below) and its product number is 4219-6204. Your Napa auto parts store knows it as H204 or H-204, available in stores only.

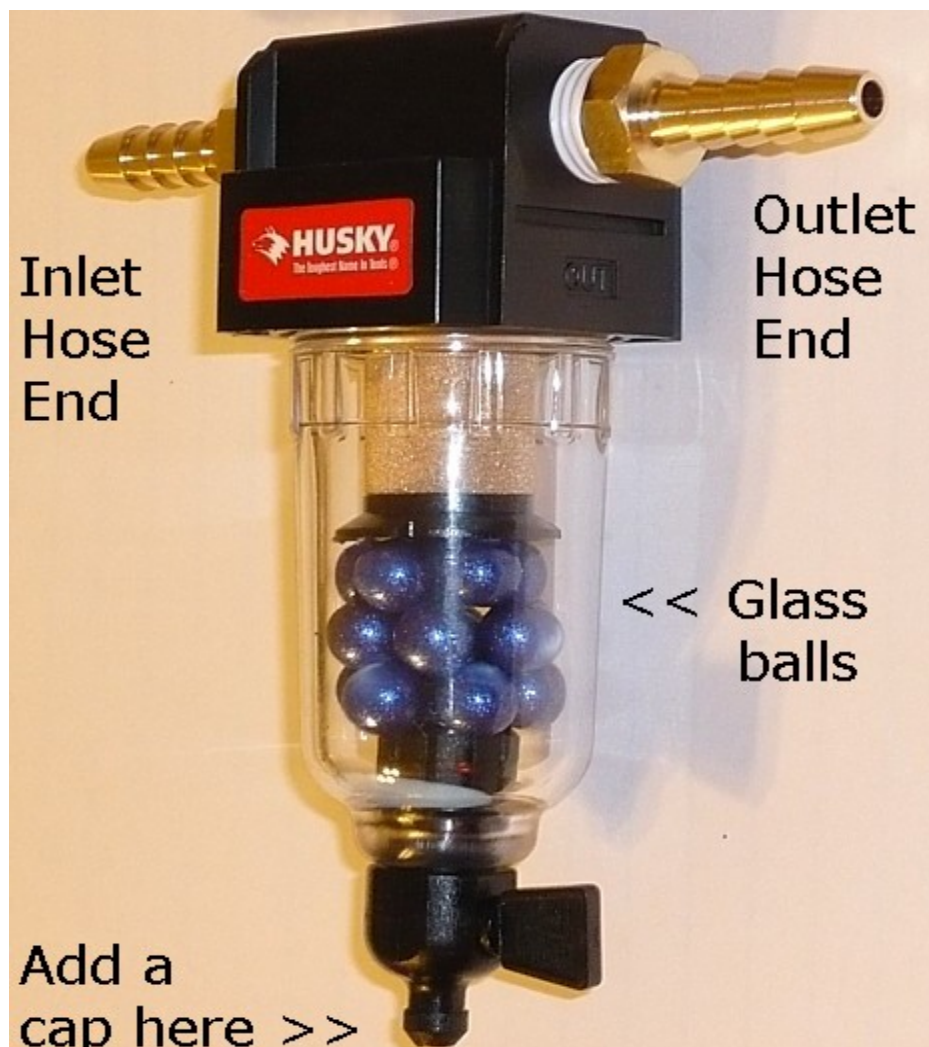
*The Gates Rubber Co.
1551 Wewatta Street
Denver, CO 80202, USA
Phone: 303-744-1911
Website: <http://www.gates.com>

REPLICATING THE PCV ENHANCER

STRUCTURE

Use the photo below as a guideline. Replicating the PCV Enhancer is pretty simple:

1. Apply Teflon tape to the male hose ends, install them into the air inlet and outlet ports of the filter, and tighten with a wrench.
2. Open the bowl (the transparent part) by hand, **taking care not to lose the rubber o-ring**, and insert twenty 8-mm balls/beads into it. The number of balls/beads may be different in two cases: either (a) you have a different diameter balls or beads, or (b) you want to leave more room for the filtered out water and gunk.



3. Add a rubber cap at the bottom, because the built-in valve is designed for outward flow (pressure) rather than vacuum. Without a cap it will leak no matter what position you put the wing.

The best way I have found to make a cap is to stick one of the 8mm beads or bearing balls into a 3/8" (OD) vinyl tubing.

4. Peel off the warning sticker (see photo here) from the bowl. The reason: **It is not relevant to our use and will only confuse users and mechanics.**

Also discard the little manual that comes with the filter, because just the same **it is not relevant and will be confusing.**



Note that nothing has been said about inlet and outlet differences. That's because it didn't matter so far. It will matter only when installing the unit.

"EXCUSE ME SIR, ARE YOU SELLING AMMUNITION?!"

An alternative to the glass balls or glass beads, is to use BB pellets (the **metallic** type used for BB guns, **not** plastic toy pellets). Either zinc plated, copper plated or steel pellets will do. Old **ball bearings** from a machine or vehicle will do just as well or even better. Don't use any smaller than BB size (about 1/4" or 6.5 mm) in order to leave enough space for air and water between the balls.

The reason I don't recommend using BB's in kits (especially if they have to go through customs and airports) is the "ammo" connotation which will immediately get you in trouble with the Postal Services, Police Departments, Customs, the Parents and Teachers Association and who know who else. Ridiculous but true :-)

Another alternative is to use **small** marbles from the dollar store. Just make sure they are indeed made of **glass**, not plastic! Don't use those marbles that look metallic because they are plastic inside – you can feel their light weight and temperature. Glass marbles will feel cooler and will sound like glass when you knock them against each other.

Whatever the material, I recommend that you put just enough balls/marbles to prevent them from jerking around while the car is moving. Too much motion inside will scratch the bowl faster than normal.

PARTS LIST

Qty	Description	Catalog #	Source	Barcode
1	Husky Mini General Purpose Filter*	HDA704	Home Depot	04556460664-0
2	Watts 3/8" Hose Barb Adapter**	A-293	Home Depot	04864307449-1
4-6	1/2" Stainless Steel Gear Clamp	62604	Home Depot	07857510304-4
2	3/8 PCV Hose	H-176	Gates***	
20	Glass beads, 8mm round	1967-31	Jo-Ann Crafts	65269539126-2

* You can also use the larger Husky General Purpose Filter, model HDA706, which has a larger capacity for gunk and water collection.

** The Watts 3/8" adapters may be replaced with Husky 3/8" Adapters, if you find them in stock. They come in pairs and their prices are a bit lower than Watts.

*** Available at (or order from) the NAPA auto parts store, store locator at <http://www.napaautocare.com/locator/StoreLocator.aspx?st=0> and the original manufacturer is:

The Gates Rubber Co.

1551 Wewatta Street
Denver, CO 80202, USA
Phone: 303-744-1911

Website: <http://www.gates.com>

PATENT NOTICE

REPLICATING THIS DEVICE **DOES NOT INFRINGE** ON THE PATENTS OF MR. ELMER W. BUSH (1923-2004) REGARDING PCV ENHANCEMENTS.

A COMPLETE WRITEUP ON THIS MATTER IS PROVIDED **FOR YOUR PROTECTION** IN OUR **GAS SAVING TECHNIQUES** BOOK.

FREE WATER & FREE BAKING SODA

HOW TO MAKE YOUR OWN DISTILLED WATER



OPTION 1

Here's an idea you may want to consider: you can buy the water distiller shown in the photo, offered for \$97 at WeBeatPrices.com (they usually cost hundreds).

Or build your own from \$9 plans sold on eBay. These plans are cheap, but may require materials costing more than the water distiller mentioned above.

OPTION 2

You may choose to build a water distiller yourself, for dirt cheap. Grab the **Free Solar Distiller Plans** at wwwthefarm.org/charities/i4at/surv/sstill.htm

The solar distiller suggested there produces three Gallons per day. Since you need only a fraction of that per week, you can reduce the plans and build a much smaller version from scrap materials.



OPTION 3

But here's how you can build a solar water distiller RIGHT NOW for next to nothing, because most of the materials needed can be normally found around the home:

1. Take a bucket or a big plastic bowl, fill it $\frac{3}{4}$ with tap water, and place a large cup in the center of the bucket, above water level. Suspend the cup with some tape or wire so it stays afloat at the center of the bucket.
2. Put any type of plastic wrap or thin plastic sheet (preferably clear or transparent) over the top of the bucket.

3. Put a stone or some other weight at the center of the plastic wrap, on top. It should be just heavy enough to bend down the wrap and form an inverted cone. The tip of the cone should be pointed directly into the cup inside the bucket.
4. Place this contraption in the sun for a few hours. The water will start to evaporate and its vapor will condense on the plastic wrap. The condensed water will drip down the cone you've created - and fall right into the cup. This is distilled water.
5. DO NOT DRINK THIS WATER. The warm plastic leaves microscopic particles not good for human consumption. Yet this distilled water is perfectly good to run a car!!!

HOW TO GET 100% FREE BAKING SODA

Many households use Baking Soda for a wide variety of uses. Harry Godwin details SIXTY different uses of Baking Soda at

www.thefarm.org/charities/i4at/lib2/60soda.htm

These uses cover household cleaning, relief of bee stings, cleaning teeth and even... baking (duh!)

After Baking Soda has been laying around for a while, especially if kept open in the fridge to absorb odors, it loses its freshness and/or becomes kind of solid, thus unable to absorb the odors. Housewives and cleaning ladies throw them away all the time. Ask your neighbors to keep for you those Baking Soda boxes or bags that they're replacing with fresh ones, and you'll have enough supplies for a lifetime. As above for water, do not consume stale baking soda for your own food and hygiene – yet it is perfect for running a car!!!



And don't forget to thank your neighbors for contributing to environmental preservation, both by (a) recycling, and (b) helping to reduce smog and global warming!

NOTE: USE ONLY PURE BAKING SODA such as Arm & Hammer. If the soda has sugar and stuff in it, those materials would not get directly into the engine. But the chemical reactions inside the device itself are unpredictable.

HEALTHY DRINKING WATER YOU CAN MAKE

INTRODUCTION

Bill Lang has been producing and drinking his own healthy water for a long time. In this chapter you will find how to make your own drinking water using Water4Gas hardware.

George Wiseman from Eagle-Research says that treating water with HHO can "produce health benefits and a kind of transmutation*. A wide variety of minerals have been produced from 'pure' water using a simple and inexpensive technique."

* Transmutation (definitions from the Internet):

1. Changing a gross force into a finer one.
2. The changing of energy into matter or matter into energy.
3. An act that changes the form or character or substance of something.

The purpose of this chapter is to show you how you can do it at home using a very low cost technique. In fact it is so easy and cheap that, once you've tested it and (possibly) saw some health benefits for yourself, you may decide to produce quantities of 1water for your friends, family and co-workers. That is, of course, only if you want healthy people around you.

DISCLAIMER

NOTHING DESCRIBED IN THIS CHAPTER IS MEANT TO CURE OR DIAGNOSE ANY DISEASE. I'M NOT JUST SAYING IT - I **MEAN** IT.
THE USE OF THIS INFORMATION IS SOLELY AT YOUR OWN RISK!!!
THIS IS NOT A MEDICAL ADVICE EVEN IF I WANTED TO, BECAUSE I AM NOT A DOCTOR AND I HAVE NO INTENTIONS OF BECOMING A DOCTOR (OR MARRYING ONE :-)

THE MODERN MIRACLE OF "NEW WATER"

We've already discussed the health benefits of using HHO in your family and business vehicles – less pollution leads to less diseases and easier breathing in and near these vehicles. Common sense. Now we're going to discuss the potential benefits of **DRINKING water that has been treated with HHO.**

Yes, you read it right. HHO has been proven to produce what's called "new water". I always though that water was water was water was water. That was a mistake, or

lack of vital information. Water is much more than H₂O. It takes many forms, and the best evidence is when you freeze water into ice, you see different patterns.

Have you ever looked at snowflakes under strong magnification? They are different and unique, and that certainly has a reason. Water takes at least 130 major forms, and perhaps we are still so uninformed – we may find in the future that there are thousands of water formations. Maybe much more.

Dr. Masaru Emoto from Yokohama, Japan, is well known for his research into water formations. Dr. Emoto has shown that if human thoughts are directed at water before it is frozen, images of the resulting water crystals will be beautiful or ugly depending upon whether the thoughts were positive or negative. Emoto claims this can be achieved through prayer, music or by attaching written words to a container of water. Since 1999 Emoto has published several volumes of a work titled *Messages from Water*, which contains amazing photographs of water crystals, and what intention or emotion they relate to.

There is a tremendous amount of knowledge on the subject. Unfortunately not widely known to the public, but still great in depth and width. But let's just simplify this for our little discussion here. Let's oversimplify and split water into two groups, namely "dead water" and "live water". Dead water is what you would normally find coming out of your home tap. Filter them and what do you get? Filtered dead water. You have removed **some** of the dangerous chemicals, but this did not bring the water "back to life".

We can talk about magnetic treatment of water and we can talk about the \$5,900 machines that are being sold right now for treating (alkalizing) water at home. By the way some friends let me have a bottle or two and the effect was amazing. I just don't have \$5,900 to spare... But the amazing thing about HHO is that it can do wonders to water and bring it back to life for pennies!

WATER FACTS

- To function properly, our cells must turn water, H₂O, into **H₃O.OH**. H₃O.OH, in simple words, is what can be called "structured water" and is the same as the structured water inside our cells.
- Cells damaged by trauma, age, stress, toxins, inadequate nutrition, radiation (including sun radiation) lose their ability to turn H₂O into H₃O.OH
- When cells do not contain H₃O.OH, they do not properly take in oxygen and nutrients, eliminate wastes or properly reproduce themselves. In fact they suffer damage to their DNA or in other words the "recording" of how our body should function for optimum self-preservation.
- When our cells function improperly due to the factors described above, and the DNA is damaged, we get weak function resulting in less than optimal survival: weak immune system, scarring, sagging, wrinkling, aging and degenerative diseases.

- Unlike common belief, over 90% of our diseases are caused by damage to our cells, not by genetics and "heredity".

RECOMMENDED READING

- www.martin.chaplin.btinternet.co.uk - Water Structure and Science
- www.rumormillnews.com/cgi-bin/archive.cgi?noframes;read=22438
- www.wellnessgoods.com/messages.asp
- www.soulsofdistortion.nl/water2.html

WHAT NEW WATER CAN POSSIBLY DO FOR YOU

This technique has been handed down to me by Mr. Bill Lang of Gulf Laboratories, Florida, who has developed the majority of Water4Gas technology based on long-forgotten patents as well as new research.

Additionally I have great respect for Mr. George Wiseman of Eagle-Research, Canada, who has a lot of experience using Brown's gas for various applications. I'm going to quote these two gentlemen here to explain this health-related technique.

George Wiseman says on his website www.eagle-research.com that many unexpected uses of Brown's Gas are available and seemingly practical, some of which are yet to be discovered by the public. Wiseman says that "this technology will change civilization as we know it."

One of the interesting uses he counts, between welding and heating, is that water can be "programed" to create health effects: "We can make water that gives a feeling of relaxation and well-being just by drinking it."

ELECTRICAL CHARGE: Wiseman gives the only explanation I have found so far WHY or HOW HHO-impregnated water do whatever they seem to be doing to the body: "When Browns Gas is bubbled through clean water, the water absorbs oxygen and hydrogen. We think there is an **additional energy (electrical in nature) added to the water** as well. We find the drinking the resulting enhanced, oxygenated and hydrated water to bring us **alert like drinking a cup of coffee, without the side effects**".

He also says that Brown's gas disinfects water, similar to the effect of chlorine – but without the toxic hazards of chlorine (as chlorine kills undesirable organisms in the pipeline, it might kill vital organisms in a healthy body).

OXYGENATION: It is generally known, says Wiseman, that **oxygenated** water is healthful due to the known health effects of oxygen. But it is unknown to the public that "water is even more healthful when **hydrogen** is added to it."

Water-is-water-is-water seems like a scientific fact, but it's actually proven wrong. It matters HOW you take in water. Water by itself will NOT nourish (hydrate) the body

when taken with sweeteners, coffee, chlorine, or carbon (carbonated soda) – and those additives will even DEHYDRATE your body and rob you of important nutrients. Instead, it is recommended to HYDRATE the body because “most of the diseases known to mankind (including aging) can be prevented or mitigated by hydrating the body.”

Wiseman counts the various health benefits possible by drinking **Brown's Gas enhanced water**:

- “Every test of **Brown's Gas enhanced water** shows it to be super hydrating, far superior to regular water (as much as 10 times). Enhanced water is an essential key to keeping an active youthful body as the years go by. We have reason to believe this water enhances every chemical process in the body, making a super immune system and mitigating the symptoms of aging, mostly caused by dehydration.”
- “When brown's gas is applied to the skin, hydrogen and oxygen are absorbed which then flow (via blood) to muscles and joints that have problems due to dehydration, resulting in nearly instantaneous relief of pain caused from cramps and swelling. This relief continues for extended periods of time.”
- “When brown's gas is applied to a wound, hydrogen and oxygen are absorbed which kills anaerobic microorganisms and assists cell regeneration.”

Bill Lang reports GOOD PERSONAL RESULTS so far (he's been doing it for years) from drinking HHO impregnated water:

- “Raises blood/oxygen content as measured on a pulse/oximeter.”
- “Drops PSA (prostate specific antigen) from around 8.6 to a level below 1.0.”
- “Seems to be effective against arthritis.”
- “Seems to be effective against restinosis and may accelerate angiogenesis.”
- “Really quite interesting!”

“The charged water is simply just that, charged water. Such benefits as may be obtained by its use are a function of the water being charged with HHO or Browns Gas.”

“We are working on the simplest possible level here. The subject is so cluttered up with strange and interesting nomenclatures that it is difficult to get to a simplicity.”

“Browns Gas when introduced into the combustion process results in the destruction of pollutants. Who is to say that this is only way to reap the benefits of Browns Gas (HHO)? Is there any reason to think that Browns Gas (HHO) would not work in a similar manner when used in some other way? Like bubbling it in water, to clean

(purify) and charge the water? We think not! There is every reason to believe that this simple process is very effective."

"Making alkaline water is an entirely different but related process. It is far more complex. We are not trying to make alkaline water. Charging water raises the pH about 1 point. We are just making charged drinking water."

"I have not seen an exact duplicate of this simple process on the Internet. This could be because sites are quite secretive about what their processes are doing. Or it could be because they have developed cut little or big pet terms for their pet technologies. Or it could be because they are housed in containers that make it impossible to determine what is inside them. In any case, I have done my homework on the subject."

TEST 1.

"All I can suggest is that you make some of the water and drink it. You might want to start with "tap" water! Have a friend fill two glasses, one with tap water and the other with tap water that has been charged. A taste test will tell you which is better."

TEST 2.

"Sit on a kitchen chair. Place a glass of tap water between your legs. Lock your thumbs and forefingers together into two circles. Hold them strongly together and try to pull them apart. **Try the same test with charged water.**"

"It is certainly possible, given what we know about the behavior of Browns Gas (HHO) that fluoride, chlorine and many other pollutants usually found in treated city water are somehow displaced and/or removed by the charging process. Most certainly water is enhanced or improved by the charging process."

PULLING TOXINS THROUGH YOUR FEET

Bill Lang: "There is another application I have been using for a while. Pulling toxins from the body."

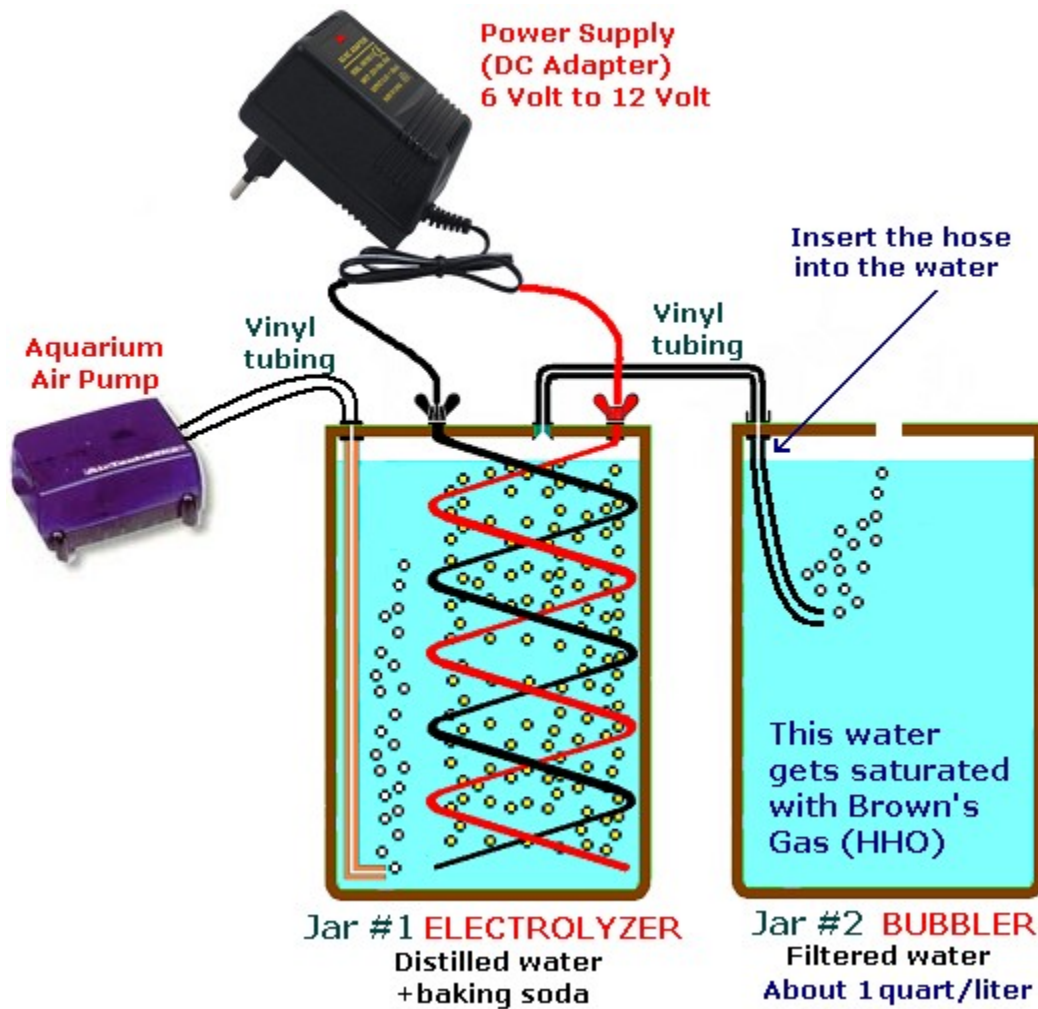
1. "Get a dish pan and fill it 1/2 full of water. Add some baking soda and put your Electrolyzer into the water. Check to see that it is making a suitable amount of Browns Gas (HHO)."
2. "Put your feet into the water and see what happens. Check the wall wart from time to time to be sure it is not overheating."

CHARGING THE WATER

I've been going for pages and pages about the benefits and you must have been asking yourself: "but how the heck do I MAKE this water?"

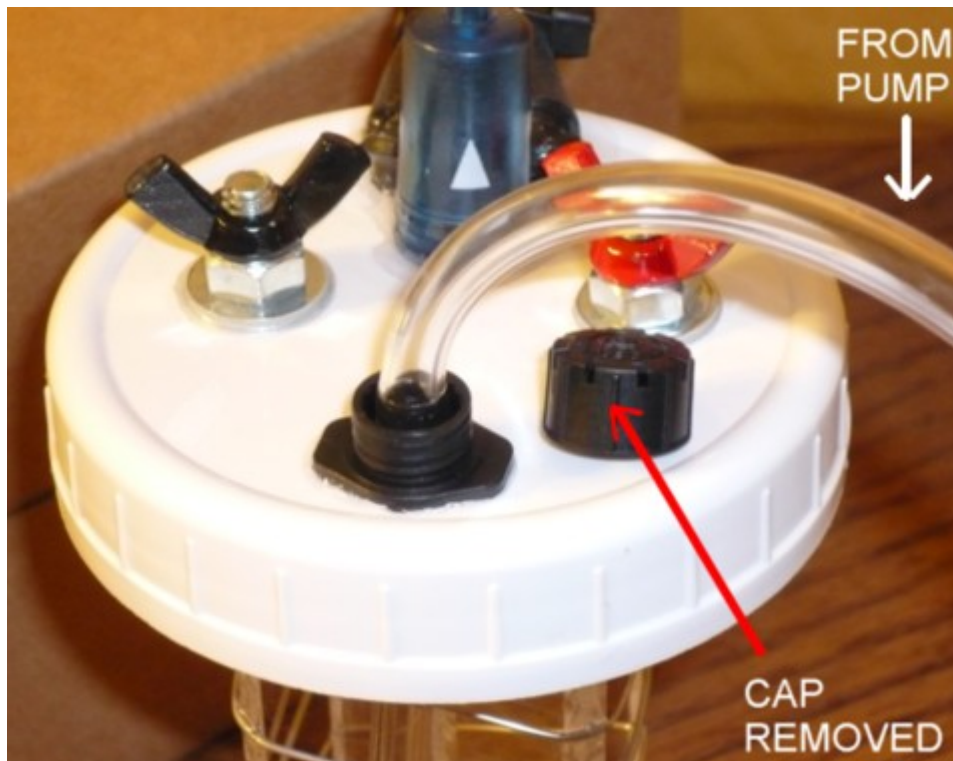
Well my friend the answer is very simple: **impregnate the water with HHO**. All you have to do is generate some HHO and **bubble it through clean water**. The setup and procedure are based on Bill Lang's recommendations and extensive experience.

The setup is simple:



The procedure is quite simple too, but you must follow it exactly. We will call the two jars #1 and #2 as they are shown in the setup picture above:

18. In your kitchen, prepare an open top jar or large bottle where you want the "charged water" to be – that's Jar #2. It doesn't have to be glass but glass is king when it comes to health. Any quart Mason jar will do. In typical kits we recommend an extra widemouth jar for this purpose. LEAVE THIS JAR OPEN – NO LID OR COVER.
19. Fill up jar #2 with FILTERED WATER. Tap water may be fine in some rare cases, but since in some areas this stuff can be so badly contaminated that we don't want it near ANYTHING that we're gonna drink, let's say fill it always with **filtered water**. Or bottled drinking water (which is "dead water" nearly 100% of the time so we want to improve on that).
20. Now set up your Electrolyzer as jar #1 (what, you don't have one yet? Get it at www.Water4Gas.com), also in the kitchen. CAUTION – KEEP AWAY FROM OPEN FLAMES, SPARKS AND CHILDREN because we're going to generate combustible gas.
21. Fill jar #1 half way with DISTILLED water (1 pint or 450 cc).
22. Remove the bubbler cap (only the loose cap, not the whole thing, as shown in the photo below. Keep it in a safe place). Connect a thin vinyl tubing ($\frac{1}{4}$ " diameter, about 15" long) to the air inlet of jar #1, the one that leads to the bottom of the Electrolyzer. See photo below for clarification:



23. Connect a SMALL aquarium pump (the smallest you can get, about \$8 worth, is all you need) to the tubing you've just added. Don't plug it in the wall outlet yet.
24. Connect a ¼" vinyl tubing to one of the HHO outputs of Jar # 1, long enough to reach jar #2. Its end must be able to submerge in the water of the jar #2.
25. The Electrolyzer must be air tight. Seal any output of the Electrolyzer (jar #1) that may allow the gas to leak into the open air. In our Electrolyzer it would be the safety valve (check valve, shown in blue in the photo), and the second HHO output; seal each one with a little rubber cap or a piece of insulation tape. **You can kill two birds with one stone by plugging them into each other!** Just add a small piece of vinyl tubing to adapt the diameters and get an air tight connection. See photo below:



26. Connect the Electrolyzer to a cellphone charger or similar, that puts out about 4-6 volts. Don't plug it in the wall outlet yet.
27. Add 1/8 teaspoon of PURE Baking Soda into the Electrolyzer. **Don't use anything but pure Baking Soda.** The idea of the quantity is to create a current just enough to draw the maximal current of the cellphone charger, no more so we don't burn it. If you have a digital voltmeter you can play with that. Otherwise use 1/8 teaspoon for starters.

If you're not sure how much is 1/8 teaspoon exactly, do the following: put 1 flat teaspoon of Baking Soda in 2 glasses of water, mix it well together and

pour 1 quarter of 1 glass into the Electrolyzer when it's empty, then fill up more filtered water till it's **half** full.

There is nothing holy about these numbers, I am only trying to pre-estimate what should work for you. But experimenting for yourself is the best way to go, using my numbers as your starting point.

28. Check your setup, then plug the cellphone charger into a wall outlet and observe the setup again. The Electrolyzer should be producing HHO (you'll see tiny bubbles forming around the electrode wires).
29. Plug the aquarium pump and observe the bubbles coming out of the tubing, at the bottom of Jar #1. Assuming that your setup is right and the Electrolyzer is indeed air tight, this will push the invisible HHO out of the Electrolyzer and into jar #2. You will see bubbling coming out at the tubing in the open jar. Those bubbles are air **with HHO**.
30. Make sure the cellphone charger does not overheat. If it feels REALLY hot after a few minutes, unplug it and reduce the amount of Baking Soda in jar #1. You don't have to throw away the water, just dilute it with distilled water and then pour some out to reduce it back again to about half jarful.
31. That's all for the preparation. Now you're "charging" or "transforming" the water in the jar #2 with some kind of energy that I cannot explain in scientific words, but you're actually doing it. Let it do its thing for 30-45 minutes.
32. After 30-45 minutes unplug the electricity from the charger and pump. Pour some of the water from the **jar #2** into your favorite glass and drink it. I believe this water will stay charged for a couple weeks so you don't have to prepare fresh water every time. But if you feel that it has weakened in strength, go ahead and prepare fresh water as frequently as you like.

To scale this setup to a bigger quantity, place a large bowl or pot (clay or ceramic is best) in place of Jar #2. I think larger quantity of water will take longer to impregnate, maybe an hour per gallon.

FINAL NOTES

DRINK THIS WATER MODERATELY AT FIRST. Not that it has alcohol or is dangerous. The reason I'm saying this is that this water has a lot of power, and it may trigger healing symptoms at first. I have no idea what can come up, it could be rashes or bowl movements or whatever. It depends what undesirable conditions you might have in your body. I cannot tell you not to rush to a hospital. I can only tell you what I would do – I'd take it moderately and expect some healing, which means the crap will be running OUT of the body, creating these symptoms **ON ITS WAY OUT**.

None of the statements or methods mentioned in this chapter have been approved by the FDA - and never will be. Not in the 21st Century anyway. I'm

only giving you the observations and personal experience of people I know who are using this to better their body conditions.

I am not going to ask my doctor about it because he will say: No! What the heck are you talking about, what "new water"? Have you totally lost your mind? Blah blah blah. But legally and ethically I have to tell you this: consult your doctor or your professional health practitioner. That's because if you have a serious physical condition, drinking new water may trigger a heavy healing effect.

In my humble estimation you may feel a bit off in the first 2-3 days of using this water, until your body adjusts. Like I said this is a healing phase that will pass. Just take it easy, ease off on drinking this water if you feel odd. Don't push it, the water will not run away. Relax it, then continue after a day or two.

To a brighter and stronger you!

YOUR RIGHTS

FREEDOM OF INFORMATION

Please note that you cannot obtain a patent for these devices, or for any other similar device that we're aware of. All the information concerning the operation and construction of this technology are in the Public Domain. This information and technology are given to you as a public service because it is in the public interest to circulate information about the benefits of this simple technology. It is a public benefit to make and install this technology. We hope you will do so. You are more than welcome to copy our technology (but not this book).

TRADEMARK NOTICE:

If you're opening your own business or group then **DO NOT COPY** the **Water4Gas** trademarks/logos. Create your own!

The only individuals and businesses allowed to use our trademarks are:
(a) active Water4Gas **affiliates** and (b) active Water4Gas **distributors**.

SATISFACTION GUARANTEED

This technology is usually hand-made from available hardware components, not due to costs (it would be cheaper to make them by machine), but because it is intended to be DUPLICATED EASILY by everyone in the world with basic mechanical and electrical skill, using nothing but simple hand tools AT HOME.

Our design is based on high quality, long lasting and durable parts. The design described in this book has been tested over long periods of time. Should you find the design to be faulty, please contact us and we'll try to give you points of improvement. **Water4Gas** technology should improve your vehicle's performance and economics. If for any reason you are not satisfied with your purchase (from **Water4Gas**, not from anybody else!), we offer a refund policy as posted on the website.

On the other hand, it is your responsibility as an experimenter to avoid complaining unnecessarily and keep a positive attitude about the whole thing. If ANY problem arises, please **communicate to the correct party** in order to find a solution.

The complete terms and conditions governing the usage of the technology and the information are posted on our website. We preserve the right to change these terms and conditions at any given time.

LEGALITY

Water4Gas OFFERS NO LEGAL ADVICE – we are a team of experimenters, not a legal advisory council. So this is my personal OPINION, not fact. As far as I can see from the **California Vehicle Code**, which is the toughest in the world as far as I know, legality of Hydrogen-On-Demand technology (the Electrolyzer) is given. However judge for yourself or consult an attorney.

Now let's talk about changes to OBD (On Board Diagnostics), specifically in order to achieve a leaner mixture and save on gasoline. Now that's a different subject entirely, not related to Hydrogen-On-Demand. We don't know the vehicle code in your country. **Here in the USA it is illegal to make changes to any OBD-I or OBD-II system (emission control equipment such as sensors, computer, etc.)**

Therefore **the information presented here is offered solely for the purpose of off-road testing and for people outside of the jurisdiction of the USA. If you find any such changes beneficial to gasoline economy and emissions reduction and you want them approved for broad public use, appeal to your government to change the rules.** It's not impossible. Major countries in Asia such as India and Japan are open to embrace such technologies and are currently in the process to legalize water cars and air cars for public roads. We hope that the USA will follow.

YOUR RESPONSIBILITIES

One thing stated on the website and should be repeated here: we are not manufacturers or distributors of consumer products. We're more like teachers, and you pay for the knowledge, not tangible products.

Your responsibility is to experiment with this technology, including choosing the right vehicle for the job, installing and maintaining the system of your choice in that vehicle, as well as tweaking it to maximum performance. You may ask for guidance of course. But it's your responsibility. **And it's your responsibility to install, maintain and conduct experiments in a safe and legal manner.**

Another responsibility you have, in my humble opinion, is to contribute to the public's trust and belief in this technology. If it didn't work for you, investigate why this has happened. Even if you decide to quit, we expect you to respect others who are still trying and those poor countries who desperately need energy solutions however partial, by NOT defaming this technology and the guys promoting it.

WHAT'S NEXT?

I hope reading this book has enhanced your belief that water-to-energy is not a hoax and is **not** complicated or expensive rocket science either. Your next step is to make full use of the knowledge you now have, for your benefit and for the benefit of your environment.

If you are reading this book and you don't have a system to install in your car or fleet yet, then build one yourself - or get system(s) from The Free Marketplace www.water4gas.com/free-marketplace.htm.

**THANKS YOU SO MUCH FOR YOUR PARTICIPATION
AND SUPPORT!!!**

To a Free Earth!



Ozzie Freedom
www.Water4Gas.com

WE NEED YOUR HELP

THANK YOU FOR READING THIS BOOK!

Please help us spread the good word – the world MUST know about this technology!
So please...

**Enjoy this exciting new technology - and
tell your friends about your**

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GLOSSARY

UNIT CONVERTER:

Miles to kilometers? Grams? Ounces? Would you like a SIMPLE conversion tool that does not need to be purchased or installed? Visit the simple converter www.flowmeterdirectory.com/flowmeter_unit_converter/index.htm

or the very extensive collection of converters at www.unitconversion.org

302/304: Grade of stainless steel. Strong and durable under water.

316L: Grade of stainless steel. A bit softer than the 302/304 grade, due to lower carbon contents, yet even more durable under water during electrolysis for the very same reason. We use 316L for our anode (see def.) to prevent fast oxidation by the electrolysis (see def.) process. Oxidation corrodes only the anode, since it is always surrounded by oxygen during electrolysis.

AC: Alternating current. Electrical energy (electrical current, voltage) which alternates cyclically between positive and negative in polarity.

Acetone: A highly flammable, colorless solvent. Also known as propanone, dimethyl ketone, and other names. It is readily soluble in water, ethanol, ether, etc., and itself serves as an important solvent (actually the strongest consumer-grade solvent available to us). Its most familiar household use is as the active ingredient in nail polish remover. Also used to make plastic, fibers, drugs and other chemicals. A MAJOR FUEL SAVING ADDITIVE AND IS THEREFORE THE MOST IMPORTANT COMPONENT OF OUR FUEL ADDITIVE COMBOS.

Ampere (amp): A measure for electrical flow. How many electrical particles flowing in a conductor (wire, resistor, etc) per unit of time.

AMSoil: A manufacturer of high quality motor oils, filters and additives.

Anode: The positive-charged pole (wire or plate) in an electrolyzer (see def.) or battery. The electrode with the positive voltage. In an electrolyzer, this is where the oxygen is being produced.

Atom: Once thought to be the smallest part of an element or substance. Today we know it's not so - it is made of "sub-atomic particles" such as electrons - that can probably be broken down further.

Atomize: Making liquid or substance into a mist.

AXG7: Our abbreviation of Acetone-Xylene-GP-7 (GP-7 is a racing lubricant by Torco). Blended in correct ratios, it is a powerful fuel additive you can make yourself.

AXG7-TS: (AXG7-Teaspoon) A more economical version of AXG7, where only one teaspoon of the racing lubricant GP-7 is blended with acetone and xylene.

BB: Ball Bearing. Sometimes refers to ammunition of BB guns, but can also mean steel balls from a mechanical source such as a ball bearing device for shafts.

Bio fuel or Biofuel: Fuel (for transportation, in our case) made from "biomass" - biological sources such as corn or wood that have completed their life cycle; environment friendly. Biofuel could be liquid, gas or solid.

Blow by (gas): Gases that skip past the piston rings in an engine; normally routed back into the intake via the PCV valve.

Boric acid: Also called boracic acid, orthoboric acid or hydrogen orthoborate. It is a chemical compound, a mild acid often used as an antiseptic, insecticide, flame retardant, and a component of other chemical compounds. It exists in the form of colorless crystals or a white powder and dissolves in water.

Brown's Gas: A mixture of hydrogen and oxygen. The product of an Electrolyzer. Two parts hydrogen to one part oxygen plus some water moisture. Named after Prof. Yull Brown but goes by many other names: Rhode's Gas, after it earlier researcher, Dr. William A. Rhodes; also called HHO (Hydrogen-Hydrogen-Oxygen), hydroxy, oxy-hydrogen, green gas, di-hydroxy, watergas or water gas, waterfuel or water fuel, etc. In Korea they call it Brown Gas. Korea by the way has very good technology of HHO generators for industry. Brown's Gas is great not only for supplemental fuel for engines, but also good for cutting metal, soldering, brazing (joining metals at high temperatures), as well as the welding of various metals inexpensively (compared to the commonly used welding with acetylene).

BTU (British Thermal Unit): A unit commonly used to measure heat energy; the amount needed to raise the temperature of one pound of water by one degree Fahrenheit.

Bubbler: A safety-enhancing device (or part of a device) to bubble air through water in an electrolyzer.

CAN: Controller Area Network. From 2008 onward it is the mandatory vehicle control system that replaces OBD-II (On-Board Diagnostic, see def.) in all new vehicles. CAN is a general term - the specific system that will be used is titled 'ISO 15765-4'.

Carb: Carburetor.

Carbon Monoxide: A gas produced by incomplete combustion of organic materials. Highly poisonous; flammable gas - burns with a blue flame.

Carbon: The element upon which all organic molecules are based. Carbon has an atomic weight of 12.00, and occurs elementally in these forms: diamond, graphite and amorphous carbon such as coal or carbon black.

Catalyst: A material used to induce or enhance the chemical reaction between other materials without being changed in the process.

Cathode: The negative-charged pole (wire, plate) in an electrolyzer or battery. The electrode with the negative voltage. In an electrolyzer, this is where the hydrogen is being produced.

Cell (or Electrolyzer cell): Defined as one unit in an electrolysis system (a series of individual cells). By a certain arrangement of electrodes (when plates are used), a single device can have several cells. In Water4Gas electrolyzers where electrodes are spiraled to save energy, each device (one jar) would constitute one cell.

Combo: Slang for 'Combination' or in other words a popular formula.

Conductor: An electrical conductor such as wire or metal plate, that allows an electric current to flow through it.

Conservation: Various techniques and methods to use less energy, either by utilizing more efficient technologies or by reducing wasteful ones (including wasteful habits).

Current: (in electricity) the movement of electrons through a conductor. Measured in Amperes. If for instance the conductor is copper, "electrons" are those particles of the copper atoms, which are leaving their place and moving along between other atoms in the copper.

D17: Refers to document D17.pdf written by Patrick Kelly titled "Dealing with the Vehicle Computer". Is available on the Internet (search Google for "Dealing with the Vehicle Computer" WITH the quote marks).

def: definition.

DC: Direct current. Electrical energy (electrical current, voltage) which does not alternate in polarity, in other words it keeps its positive and negative; and is also somewhat "stable", in other words it doesn't pulse. Even if it changes all the time, it could still be called DC if it has those characteristics.

DEMSE: Dual-Edge MAP Sensor Enhancer. A dual-knob device to adjust mixture.

Distilled water: Water that has been "purified" of its contaminants, acids and minerals such as salt. Rain water are not distilled water.

DOSE: Digital Oxygen Sensor Enhancer. The device described in D17 (see def.)

DPDT: Double Pole, Double Throw. Switch type that can switch two circuits separately (that's the "double pole"), and is capable of making an electrical connection in each of its "throws" (sides of its motion).

ECU: Engine Control Unit. Your car's computer. It's the heart of the engine management system in a modern car, collecting many inputs from sensors around the car and controlling all functions of the engine such as fuel injection and heat management.

Efficiency: The ratio of total output power to input power expressed as a percentage. A numerical expression of the ratio between waste and actual work done. For example a low-efficiency car engine uses most of its input to produce heat, noise and vibration, rather than forward motion.

EFI: Electronic Fuel Injection. The modern science of wasting gasoline.

EFIE: Electronic Fuel Injection Enhancer, a device to correct the stoichiometric (see def.) level programmed into a car in order to accommodate waterfuel technology. Manufactured exclusively by Eagle Research (www.Eagle-Research.com)

Electrode: A conductor (such as metal wire or plate) which dips into an electrolyte and allows the current (electrons) to flow to and from the electrolyte.

Electrolysis: When a direct current is passed through a liquid which contains ions (an electrolyte), chemical changes occur at the two electrodes; usually a separation of oxygen from hydrogen or other substances it is chemically bonded with. In our case the process of splitting water into hydrogen and oxygen.

Electrolyte: A mixture of catalyst and water in an electrolyzer. We sometimes refer to the **catalyst** as **electrolyte**. That's a common mistake – the **catalyst** in our case would be the Sodium Bicarbonate ("baking soda") and the **electrolyte** would be the solution, or the mixture of Sodium Bicarbonate and water.

Electrolyzer cell: A single cell in an electrolyzer: an anode and a cathode immersed in an electrolyte. An electrolyzer can have one cell or many. Also see 'cell'.

Electrolyzer: A device or machine that splits water into hydrogen and oxygen thus producing Brown's Gas. A common misnomer is "hydrogen generator"; sometimes called "cell", as in 'Joe cell'.

Electron: Part of an atom - a negatively charged particle that can leave the atom or be added to it, thus changing its "electrical charge" to negative or positive.

Emissions: Let's not go into science formulas here. I'll give you a very simple definition: **If it stinks – it's emissions. Harmful emissions.** There are emissions that are so called "odorless", but that is a misleading concept because the body senses it one way or another. Yes, we have become numb to harmful, very hostile emissions. But see, a hungry yet healthy cat will not touch a spoiled fish, even if you can't smell anything "fishy". Old-school chefs will give a piece of the day's fish to the house cat. If the cat sniffs it but won't touch it, the fish goes to the garbage. Now if you would thoroughly cleanse your body and move to a very clean village up the mountains for a while, immediately after your return (for possibly a short while before you become numb again) you'll be able to sniff all those "odorless" harmful emissions! Standards

of government-permissible emissions are way too high health-wise, they are hostile to life and we should not agree with those anymore!

Energy: The capacity to do mechanical (such as motion) or electrical work (such as heating).

Ethanol: Also known as ethyl alcohol, drinking alcohol or grain alcohol, is a flammable, colorless, slightly toxic chemical compound, and is best known as the alcohol found in alcoholic beverages. Produced today from corn as a common fuel additive, enforced on drivers across the USA and other locations as an "improvement" to gasoline. It is very bad both for gas economy of the individual AND to national economy, since its low energy efficiency requires us to import MORE petroleum for every gallon ethanol of we use. PER GALLON, IT HAS ONLY 2/3 OF THE ENERGY OF GASOLINE. Find all the (stinking) facts about ethanol by visiting www.zFacts.com

Farad (F): A unit of capacitance.

FE: Fuel Economy.

Free energy: Energy you did not have to pay for. It's a common concept that free energy is impossible. Yet if a paid-for instrument, or just a change of usage to an existing instrument brings you an energy or extra energy you don't have to pay for, then IN THE BOTTOM LINE or in other words after your cost has been paid for, then this is considered free energy. All 'free energy methods and devices are based on this same basic principle. Solar energy is one good example. Another example is water4Gas technology – our "free energy" comes simply and directly from REDUCTION OF WASTE. Since we have oceans of water, any energy derived CHEAPLY from water is considered free, economically speaking. If you have been conditioned to believe that free energy is not possible, change your thinking about it and you'll see many instances and opportunities of free energy.

Fuel cell: A device which produces electricity by using fuel (such as hydrogen) and a chemical which reacts with it at two electrical terminals, thus producing electric energy that can be used to drive a car or do other useful work.

Fuel efficiency: Defined by the amount of work (how much motion, in the case of cars, or how many hours of operation for a lawnmower or generator) can be obtained for the amount of fuel we put in. Commonly called 'Fuel Economy' and measured by miles per gallon or kilometers per litre.

Fuel: Any substance (liquid, solid or gas) that releases its stored heat energy and turns it into actual heat and motion energy, when treated in a certain way such as by burning or by combustion in an engine. When the fuel is burned it is destroyed and leaves us with problematic pollutants. In this regard (harmful by-products of fuel burning), water is not "fuel" because when "burned" it reverts back to water vapor and oxygen that feeds back into the atmosphere.

Generator: A common misnomer for an electrolyzer, as in "hydrogen generator". When mentioned in Water4Gas literature, we refer to stationary engines that are used to convert gasoline to other types of energy, usually electricity.

Global warming: Gradual warming of a planet (in our case, Mother Earth) said to be due to the "greenhouse effect" of pollution in the atmosphere.

GP-7: An advanced fuel additive for 2-stroke engines, by Torco Racing Fuels, Inc.

GPH: Gallons Per Hour.

Green Gas: Another name for Brown's Gas.

GST: Gas Saving Technique for vehicles using WATER or Hydrogen-On-Demand. GST's are a set of methods, devices and additives all working together to maximize your fuel economy, while also minimizing harmful emissions resulting from poor engine design and inefficient use.

HHO: Hydrogen+Hydrogen+Oxygen. The product of splitting water (H₂O) into its components. Common name for Brown's Gas.

HOD: Hydrogen On Demand. A system to generate hydrogen on board the vehicle without storing any of it.

Hydrocarbons: Fuels which, as the name implies, contain primarily hydrogen and carbon.

Hydrogen: The lightest and most abundant element. A gaseous diatomic element (in simple words: gas that always has particles in pairs). The atom consists of one proton and one electron.

Hydroxy: Another name for Brown's Gas.

ICE: Internal Combustion Engine. The most common type of engine in cars, trucks, boats, motorcycles, tractors, light airplanes, generators and lawn mowers for the past 200 years.

Ion: An atomic particle that is electrically charged, either negatively or positively.

Iron: The most widely used metal. Not very useful in its pure state since it rusts and is too soft; therefore we use it as part of steel -, in various combinations with carbon, nickel and other substances that enhance its durability and range of possible uses.

Joe Cell: Type of electrolyzer constructed of a series stainless steel tubing, one inside the other. Powerful yet relatively expensive and hard to replicate. Some people such as Bill Williams claimed to have run a vehicle exclusively on a Joe cell.

Knocking: Also called "pinging" - banging noise in the engine, caused by improper combustion.

kWh: Kilowatt hour(s).

Lean (mixture): Less fuel and more air in the air/fuel mixture. In accordance with common wisdom (the "wisdom" of modern automakers) the mixture should be ideal at 14.7 parts air to 1 part gasoline. But in actual fact it can be as lean as 100:1 or more.

LED: Light Emitting Diode.

Lye: Sodium hydroxide, known as caustic soda. A strong solution of sodium or potassium hydroxide. Dangerous material used in making of hair relaxers and soaps. A common catalyst used in electrolyzers. Quite toxic, has user friendly alternatives.

MAF: Mass Air Flow. One of the inputs the ECU takes into consideration when determining the amount of fuel to be injected into the engine.

MAP sensor: Manifold Air Pressure sensor.

Methane: Natural gas or Compressed Natural Gas (CNG).

mH: mill Henry.

Mileage Seekers or MPG Seekers: Vehicle users of all walks of life who like to tinker with their vehicles, their driving habits – or both in many cases – in order to maximize fuel economy.

Mixture: Air-to-fuel ratio.

Molecule: Compound of two or more atoms, the smallest independent unit of chemical compounds.

MPG: Miles Per Gallon. The most common expression of fuel economy, the higher the better.

mV: milliVolts.

Naphtha: An ambiguous term which may mean high flash naphtha (mineral spirits), or low flash naphtha (petroleum, ether, low boiling ligroin which is a refined hydrocarbon petroleum fraction used mainly as a laboratory solvent) or something altogether different. Flash point and explosive limits vary. The term naphtha is so ambiguous that it should not be used.

Neutral coasting; or just 'coasting': Fuel-saving technique of putting the vehicle in neutral to coast down a hill.

Neutron: One of the particles found in the nucleus of all atoms except hydrogen; considered to have no electrical charge but I suspect that this concept is going to change soon.

nF: Nano-farad.

Nitrogen: An odorless, gaseous element that makes up 78% of the earth's atmosphere, and is a constituent of all living tissue. It is almost inert (limited in ability to react chemically) in its gaseous form.

NOx: Gases consisting of one molecule of nitrogen and varying numbers of oxygen molecules. Nitrogen oxides are produced in the emissions of vehicle exhausts and from power stations. In the atmosphere, nitrogen oxides can contribute to formation of photochemical ozone (smog), can impair visibility, and have health consequences; they are thus considered pollutants. [EPA]

Nuclear fission: Splitting atoms in a process that releases energy.

Nucleus: That part of an atom where the mass is concentrated (while the electrons are running like crazy around it). Contains protons, neutrons and table salt. No...just kidding... only protons and neutrons!

O₂: Oxygen.

Octane rating: A number representing the ability of gasoline to control pre-detonation, in other words its anti-knock capability; not necessarily a better fuel for a certain job.

Odometer: Mileage or kilometer gauge.

OEM: Original Equipment Manufacturer.

On board: Mounted on (or in) a vehicle.

On-Board Diagnostics, or OBD: A generic term referring to a vehicle's self-diagnostic and reporting capability. OBD systems give the vehicle owner or a repair technician access to state of health information for various vehicle sub-systems. We refer to it as a generic term for the entire "program" running the vehicle, including its usage of energy in various conditions. While there are differences between vehicles, OBD-I generally refers to pre-1996 vehicles and the more advanced (and more pervasive) system OBD-II refers to models 1996 and newer. In models 2008 it is called CAN (see def.)

Orgone: The cosmic life force. The creative force in this universe. It comes from us living beings, not from stones and dead wood. It creates and controls everything else.

Over Unity, or OU: Trying to overcome the "unity" principle in which the energy we get out of a machine or process equals, in a perfect state, to the energy we feed into the machine or process. It is a misleading term because when we think of over-unity we tend to forget that a small match can light up a huge fire. When teachers and so-called "scientists" try to limit our scope of thinking into looking at the match as the only thing in the process, they are make us think that there is no connection between things, energies and living beings. The truth is that everything is connected, and also – this is not widely known – the true source of energy is living beings, not the

physical universe. While I may store some old decaying energy, it's definitely not the source. OU is a limiting force in the energy research, and should be canceled.

Oxygen sensor or O2 sensor: An electronic device that measures the proportion of oxygen (O₂) in the gas or liquid being analyzed. Used in science labs. In modern vehicles it is a small sensor inserted into the exhaust system to measure the concentration of oxygen remaining in the exhaust gas to allow an electronic control unit (ECU) to control the efficiency of the combustion process in the engine.

A side effect of oxygen sensors is that they can prevent fuel-saving technologies which create a lean fuel-air mixture from working. If the engine burns too lean due to any modifications (such as adding oxygen from an electrolyzer), the sensor will detect the mixture as being too lean, and the engine computer will adjust the injector pulse duration, so that the air-fuel mixture continues to stay within the stoichiometric (see def.) ratio of 14.7:1 on a typical vehicle. There are ways that the oxygen sensor can be overcome. Sometimes, a device can be inserted inline with the sensor, which tricks the engine computer into thinking the mixture is stoichiometric, when actually it is either rich, or lean, and therefore, this modification will not be automatically corrected by the oxygen sensor. [source: Wikipedia]

Oxygen: A non-metallic gaseous element that makes up 21% of the atmosphere.

Oxyhydrogen or oxy-hydrogen: Another name for Brown's Gas.

PCV valve: Positive Crankcase Ventilation valve, a one-way valve that ensures continual refreshment of the air inside a gasoline internal combustion engine's crankcase.

PCV: Positive Crankcase Ventilation, a system using a PCV valve (see Def.) to evacuate gases and moisture from the crankcase of an internal combustion engine.

Petrol: A mixture of various hydrocarbons used as a fuel.

pH (from potential of Hydrogen): A scale from 0 to 14, used for measuring acidity or alkalinity, where a number greater than 7 is more basic, less than 7 is more acidic - and 7 is neutral.

Ping or pinging: Also called "knocking" - banging noise in the engine, caused by improper combustion.

Proton: A positively charged particle, part of the nucleus of the atom.

PV: Photovoltaic; producing of electricity from light.

Renewable energy (devices, sources): Energy from sources that cannot be used up because they always renew themselves: sunshine (solar collectors), wind (turbines), water motion (turbines hooked to a river, dam or ocean waves/tides). Some define it as any source of energy that has an entire life-and-regrowth cycle of up to a 100 years, such as cutting trees for energy.

Rich (mixture): More fuel and less air in the air/fuel mixture. In accordance with common wisdom (the "wisdom" of modern automakers) the mixture should be ideal at 14.7 parts air to 1 part gasoline. But in actual fact it can be as lean as 100:1 or more. Therefore ANY number beyond the very minimum that is needed can be considered "rich". I know it's not "conventional wisdom" but in a decaying planet we must try to prevent ANY waste of energy, even a drop adds up to a river.

Rubber: A natural polymer (a polymer is a large organic molecule formed by combining many smaller molecules in a regular, repeated pattern). Rubber is a hydrocarbon and also a good insulator.

ScanGuage-II: The most popular scanner (see def.) between "mileage seekers" due to its ease of use and its capability to display instant or averaged MPG, between many other codes and vehicle conditions such as temperature.

Scanner: An electronic device, usually handheld, that reads and sometimes re-programs vehicle computer error codes.

Short (circuit): Electricity taking a "shortcut" due to a (greatly) reduced resistance than the proper path, resulting in very high (and uncontrolled) electrical current. Usually ends up in fire or severe damage.

Sodium hydroxide: NaOH, lye. A common catalyst used in electrolyzers. Quite toxic, has user friendly alternatives.

Solar cell/panel, Solar thermal energy systems: Devices, cells/panels or complete systems that convert solar energy (actually any light energy) into electrical energy.

Solar electricity: Electrical energy produced directly by solar cells/panels.

Solar heating: Methods and devices which derive and control heat directly from the sun. Such as a picnic solar cooker.

SPDT: Single Pole, Double Throw. Switch type that can switch one circuit (hence "single pole"), and is capable of making an electrical connection in each of its "throws" (sides of its motion).

Specific gravity: The ratio of the density of a material to the density of water (assigned a value of 1).

Spiral: a coiled shape, like the thread of a screw or like a coil spring. The difference between 'coil' and 'spiral' is that a coil can be winding upon itself, but a spiral is spread out through space. When an electric current is flowing in a spiral conductor (wire), it creates a magnetic vortex (rapidly spinning flow, like a whirlpool).

SSO: An advanced fuel additive for snow mobiles, by Torco Racing Fuels, Inc.

Steel: An alloy (combination of metals and/or minerals) which contains iron as the main constituent.

Stoichiometric: Describing a (fuel/air) mixture of "proper" proportions. According to automotive conventional wisdom it should be 14.7:1 but in actual fact these are arbitrary numbers. A car can drive just as nicely on 25:1. In fact if you were to design it in a slightly different way, its so-called "Stoichiometric" balance would now be 25:1 (for example).

Suspension, suspended: A mixture in which fine particles are suspended in a fluid where they are supported by buoyancy (upward force on an immersed object). Solids neither dissolve in the liquid nor sink to the bottom.

Synergistic: The simultaneous action of separate things that have a greater total effect than the sum of their individual effect.

Synthetic: Man-made, not from natural sources. Actually we're using this word incorrectly when we speak about synthetic oils for example. Synthetic comes from synthesis, which means combining several sources into one product. Like a musical synthesizer that combines individual sounds to one music. So blending of corn oil and peanut oil could be called synthetic. But in the automotive industry today it is used to describe materials that are a combination of non-natural substances.

Thermal Runaway: Happens in electrolyzers refers to a situation where an increase in temperature changes the conditions in a way that causes a further increase in temperature leading to a destructive result.

Thermocouple: Two different pieces of metal, welded/bonded together. Electricity can be produced by heating one element and cooling the other.

Torco: A manufacturer of high quality motor oils and additives.

uF: A micro Farad. One millionth of a Farad.

VAC: Volts Alternating Current.

Vaporisation: The physical change of going from a solid or a liquid into a gaseous state.

Vaporizer: A device that adds water vapor to the air/fuel mixture of a vehicle's engine in order to boost its power, save gasoline and reduce harmful emissions.

VDC: Volts Direct Current.

Vested interest: Individuals or groups who stand to gain - usually financially - from some policy, often a public policy.

Voltage offset: Voltage added to the output signal of the oxygen sensor. The combined signal (with the offset) is fed back to the ECU.

Voltage: Measure of electrical tension or pressure. The unit is Volt, named after the Italian physicist Alessandro Volta.

Water Gas, watergas, waterfuel: Yet more names for Brown's Gas.

Water: An oxide (chemical bond with oxygen) of hydrogen. One of the most abundant compounds on Earth. In its pure state such as distilled water, it does not conduct electricity; but with a little help from a catalyst can be electrolyzed (separated) into hydrogen and oxygen.

Water4Gas: A combined technology to convert water to energy. Consists of a electrolyzer (or several electrolyzer cells) installed on board a vehicle or any other ICE (see def.), plus a set of fuel economy enhancers, fuel additives and other techniques.

Watt-hour: a unit of work. A simple multiplication of the number of Watt (which expresses how many electrons in a given unit of time) by the number of hours that this number of Watts is applied. Or, in the case of a battery, how many hours can the battery provide those Watts before it's depleted.

Watts: A unit of electrical power; not potential power (voltage) but actual work done. To find the "wattage" or in a simple word electrical Power, multiply Volts by Amps. Named after Scottish engineer and inventor James Watt.

WFC: Water Fuel Cell. Common name for electrolyzer.

Wind machines/turbines: Machines or devices powered by the wind which produce mechanical or electrical power. A popular renewable energy (see def.) because it can be utilized cheaply by anyone who lives in a windy area.

Xylene: Most will say it is a thinner. But FireNet International (UK) says it is actually part of gasoline: "Dimethylbenzene. An aromatic compound having the formula $C_6H_4(CH_3)_2$. **Xylene is a major component of gasoline.**"

Zero Point Energy (ZPE): In physics, the zero-point energy is the lowest possible energy that a quantum mechanical physical system may possess and is the energy of the ground state of the system [the energy left in a system when the temperature is reduced to absolute zero (0 Kelvin -2730 Celsius)].

The concept of zero-point energy was proposed by Albert Einstein and Otto Stern in 1913, which they originally called "residual energy" or Nullpunktsenergie [German for Zero-point energy]. All quantum mechanical systems have a zero point energy. The term arises commonly in reference to the ground state of the quantum harmonic oscillator and its null oscillations.

In quantum field theory, it is a synonym for the vacuum energy, an amount of energy associated with the vacuum of empty space. In cosmology, the vacuum energy is taken to be the origin of the cosmological constant.

Because zero point energy is the lowest possible energy a system can have, this energy cannot be removed from the system. A related term is zero-point field, which is the lowest energy state of a field, i.e. its ground state, which is non zero.

Despite the definition, the concept of zero-point energy, and the hint of a possibility of extracting "free energy" from the vacuum, has attracted the attention of many

inventors. Numerous perpetual motion and other devices, often called free energy devices, exploiting the idea, have been proposed. As a result of this activity, and its intriguing theoretical explanation, it has taken on a life of its own in popular culture, appearing in science fiction books, games and movies.